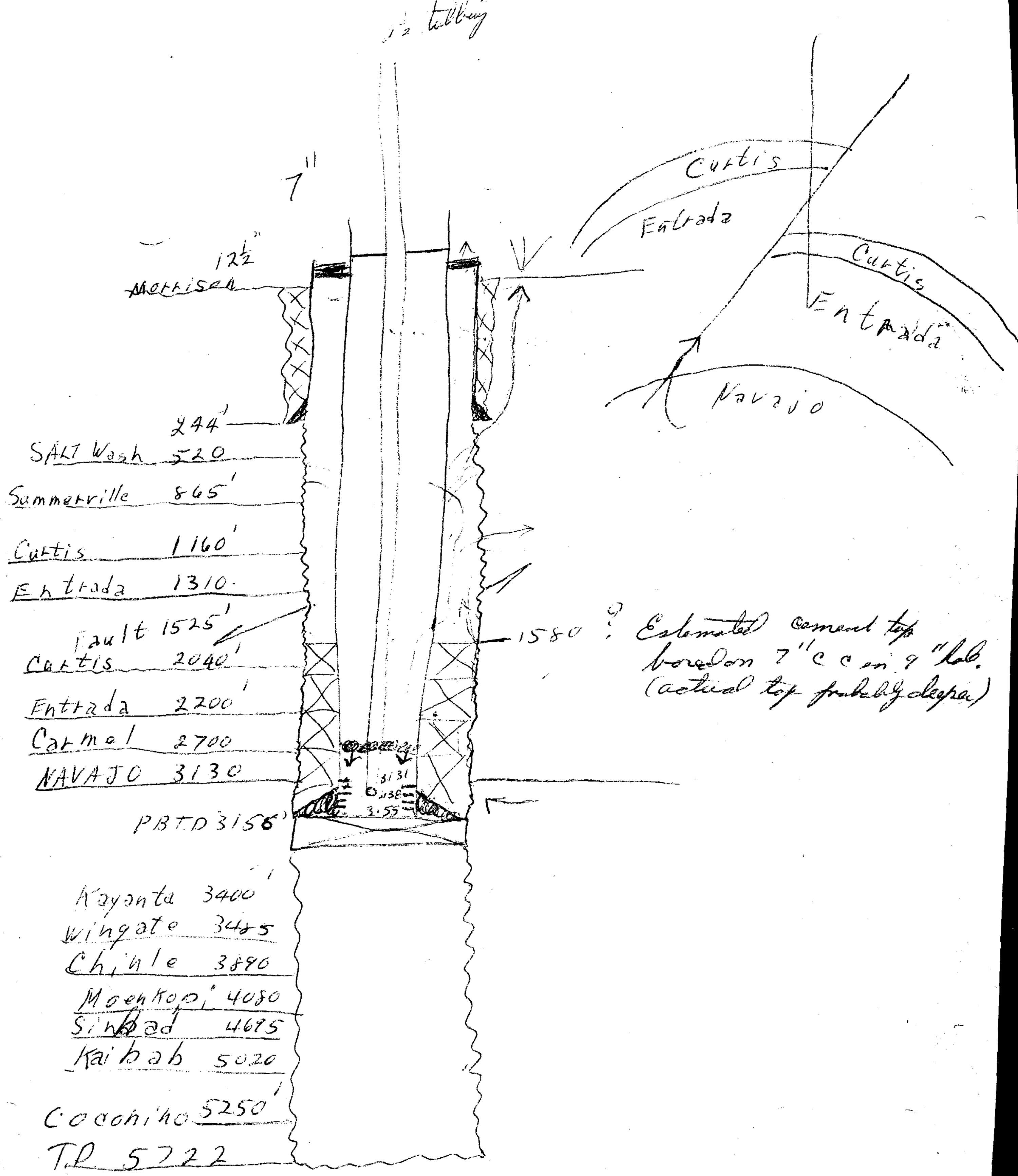
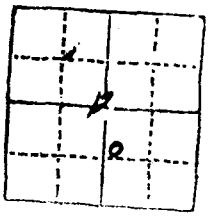


1/2 tubing
7"
12 1/2"
Morrison
Curtis
Entrada
Curtis
Entrada
Navajo
244'
SALT Wash 520
Summerville 865'
Curtis 1160'
Entrada 1310
Fault 1525'
Curtis 2040'
Entrada 2200'
Carmel 2700
NAVAJO 3130
1580 ? Estimated cement top based on 7" cc in 9" hole. (actual top probably deeper)
3131
3138
3155
PBTD 3156'
Kayenta 3400'
Wingate 3485
Chinle 3890
Moenkopi 4080
Sinbad 4695
Kaibab 5020
Coconino 5250'
T.D 5722

Form 9-331a
(March 1942)



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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office Salt Lake
Lease No. 026100-A
Unit

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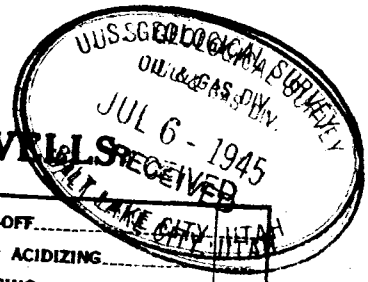
JUL 10 1945



SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	XX	SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Farnham Dome

Rock Springs, Wyoming July 3, 1945

Well No. 4 X is located 1540 ft. from {N/S} line and 2310 ft. from {E/W} line of sec. 12

NW¼SE¼ Sec. 12 (¼ Sec. and Sec. No.) T 15 S. (Twp.) R. 11 E (Range) S. L. M. (Meridian)

Farnham Anticline (Field) Carbon (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 5850 ft. approximate

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

This well is to be drilled deep enough to test all Pennsylvanian formations on this structure. The location has been moved 110 feet South of the regular location (2310' from East line, 1650' from South line) because of the very rough topography at this particular place on the structure. This well is to be commenced as soon as the Carbon Dioxide & Chemical Company Well #2, which has been approved by the U.S. Geological Survey, is completed. We would run approximately 300' of 12 1/2" pipe and cement to surface. We would then run approximately 3300' of 9 5/8" casing and cement with approximately 155 sacks of cement. Would then drill thru and test the Pennsylvanian formations which are all expected above 6000'. If necessary we would run a satisfactory 7" production string to any producing horizon.
(SEE ATTACHED RIDER FOR APPROVAL)

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company MOUNTAIN FUEL SUPPLY COMPANY

Address Box 932

Rock Springs,

Wyoming

By C. R. Hetzler

Title Vice President

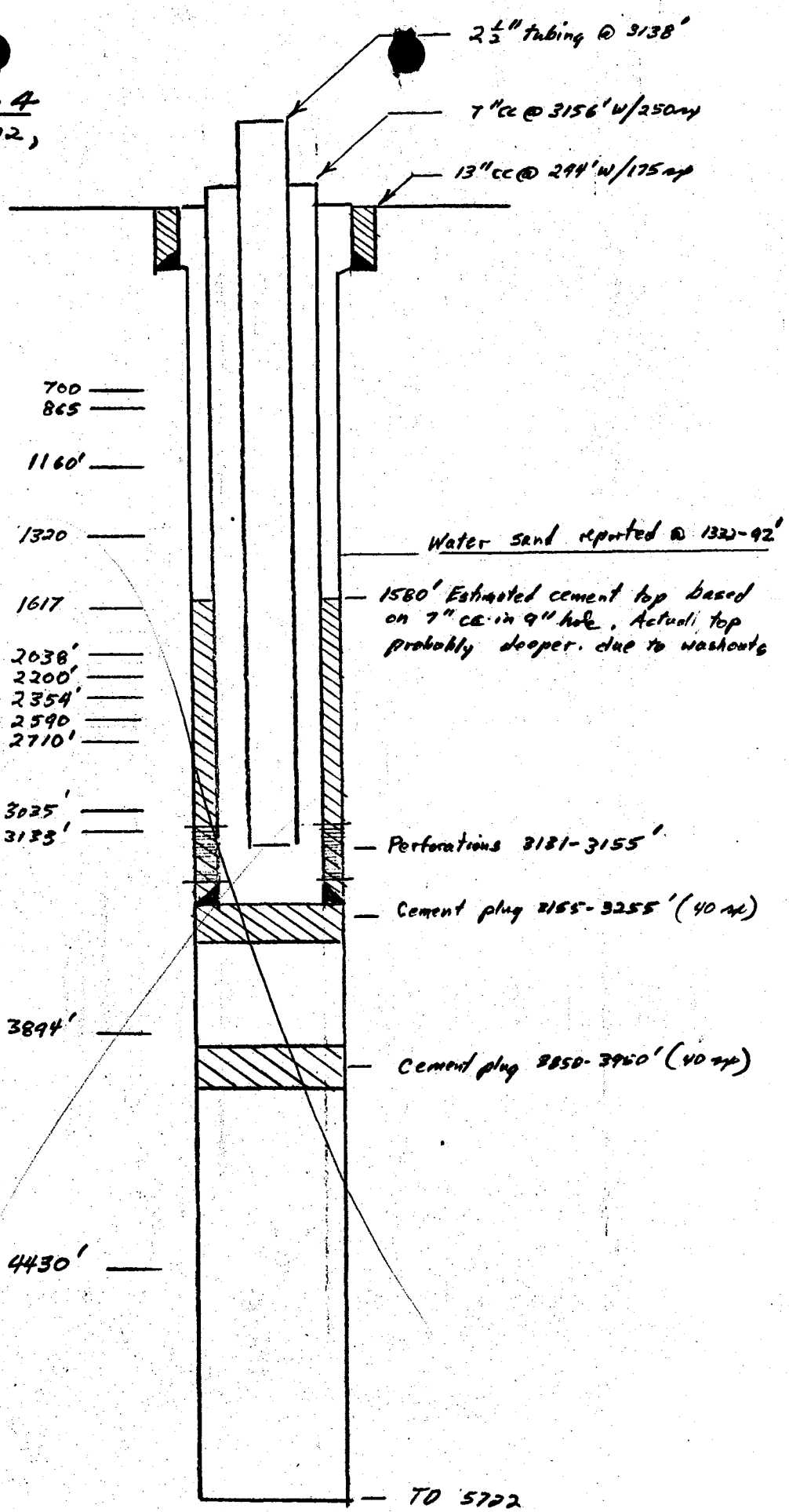
U. S. GOVERNMENT PRINTING OFFICE 16—8437-1

Diagrammatic sketch of

FARNHAM DOME PET CO NO 4

1540' FSL ; 2810' FEL Sec. 12,
T. 15 S., R. 11 E.
Carbon County, Utah
SL-026100A

Completed June 5, 1996
as CO_2 Gas Well
IP 3.25 MMCFGPD



Budget Bureau No. 42-R358.
Approval expires 11-30-46.

Form 9-331a
(March 1942)

Land Office Salt Lake

Lease No. 026100-A

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DEPARTMENT OF THE INTERIOR
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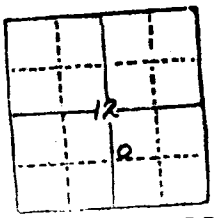

U. S. GEOLOGICAL SURVEY
AUG 28 1945
RECEIVED
SALT LAKE CITY, UTAH

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF
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NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY
NOTICE OF INTENTION TO ABANDON WELL	

Notice of Setting and Cementing Surface Pipe.

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Farnham Dome Pet. Co. Well #1 Rock Springs, Wyoming
August 25, 1945

Well No. X4 is located 1540 ft. from ~~S~~ line and 2310 ft. from E line of sec. 12

NW¼ Sec. 12 (¼ Sec. and Sec. No.) T 15S (Twp.) R 11E (Range) S. L. M. (Meridian)

Farnham Anticline (Field) Carbon (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 5850 ft. Approximate

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

238'
237' 10" of 13" OD-50#-10 thd casing with a HOWCO 13" guide shoe was landed at 243' 10" and cemented to the surface with 175 sacks of cement. The first four joints were spot welded.

Approved AUG 28 1945
C. A. Hauptman
District Engineer

AUG 28 1945

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Mountain Fuel Supply Company

Address Box 952
Rock Springs,
Wyoming

By R. R. Hetzler
Title Vice President

U. S. GOVERNMENT PRINTING OFFICE 16—6487-2

FARNHAM DOME Carbon County

12-15S-11E SW NW¼SE¼, Mountain Fuel Supply Company Well No. 1, (Salt Lake 026100-a), Ref. No. 4 AUG 1945

STATUS: DST - T.D. 244' (W.T.Nightingale 8-31-45)

REMARKS: NEW DRILLING WELL. Drilling commenced August ?, 1945. 238' of 13" 50# 10 thread CC to surface with 175 sacks at 244'. Hole drilled and casing cemented with Ft. Worth spudder and operations suspended until drilling can be resumed with the large rotary equipment now being used on the Carbon Dioxice & Chem. Co. well No. 3 nearby. Will drop from report until resumed.

AUG 1945

FARNHAM DOME - Carbon County

12-15S-11E SW NW¼SE¼, Mountain Fuel Supply Company Well No. 1 (Salt Lake 026100-a), Ref. No. 4

STATUS: Drg - T.D. 244'

REMARKS: OR November 27. Portable National rotary rig moved over from Carbon Dioxice & Chemical Company Well No. 3 by contractor Sprecher.

1945

FARNHAM DOME - Carbon County

12-15S-11E SW NW¼SE¼, Mountain Fuel Supply Company Well No. 1 (Salt Lake 026100-a), Ref. No. 4

STATUS: Drg - T.D. 2215', Navajo
Drilling 8" hole

REMARKS: in a very hard sandstone---lower Navajo

DEC 1945

(CONFIDENTIAL) FARNHAM DOME - Carbon County

12-15S-11E SW NW¼SE¼, Mountain Fuel Supply Company Well No. 1 (Salt Lake 026100-a), Ref. No. 4

STATUS: Drg - T.D. 3261', Coconino (?)
(W.T.Nightingale 1-30-46)

REMARKS: Drilling continued uninterrupted through the

cores are being

character of the form

Form 9-331a
(March 1942)

(SUBMIT IN TRIPLICATE)

Land Office Salt Lake
Lease No. 026100-A
Unit

UNITED STATES
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GEOLOGICAL SURVEY

JUN 2 5 1946

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SALT LAKE CITY, UTAH

SUNDRY NOTICES AND REPORTS ON WELLS

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NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			
Notice of Intention of Plugging Back and Setting & Cementing 7" Casing			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Farnham Dome Pet. Co. Well #1 May 23, 1946, 19

Well No. 4 is located 1540 ft. from [S] line and 2310 ft. from [E] line of sec. 12

NW SE Sec. 12 (¼ Sec. and Sec. No.) 15S (Twp.) 11E (Range) S.L.M. (Meridian)

Farnham Anticline (Field) Carbon (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 5850 ft. approx.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

We have drilled this well to a total depth of 5722', with no indication of commercial accumulation of hydrocarbons of any type. We would now like permission to plug this well back to 3155'. We would place a cement plug, consisting of 40 sacks of cement, from 3850' to 3950', and a cement plug, consisting of 40 sacks of cement, from 3155' to 3255'.

We would also set and cement 7" OD casing, through the CO2 horizon, using approximately 250 sacks of cement. After the cement has been allowed to set for a sufficient length of time, we would perforate the casing from 3131' to 3145', and from 3145' to 3155', to produce and complete the well in the CO_2 horizon.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Mountain Fuel Supply Company

Address P. O. Box 1129

Rock Springs, Wyoming

By [signature]

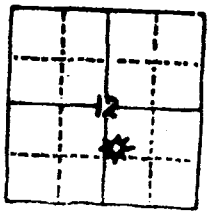
Title Vice-President

Approved JUN 2 5 1946

[signature]
District Engineer

U. S. GOVERNMENT PRINTING OFFICE 16—8437-1

Form 9-331a
(March 1935)



(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office Salt Lake
Lease No. 026100-A
Unit

ORIGINAL FILED IN SLC JUN 25 1946

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SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
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NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			
Report of Plugging Back			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Farnham Dome Pet. Co. Well #1 May 25, 1946, 19

Well No. X 4 is located 1540 ft. from {N/S} line and 2310 ft. from {E/W} line of sec. 12

NW SE Sec. 12 (¼ Sec. and Sec. No.) | 15S (Twp.) | 11E (Range) | S.L.M. (Meridian)

Farnham Anticline (Field) | Carbon (County or Subdivision) | Utah (State or Territory)

The elevation of the derrick floor above sea level is 5850 ft. approx.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Pursuant to our Notice of May 23, 1946, a cement plug was placed from 3850 to 3950', using 40 sacks of cement, and from 3155' to 3255', using 40 sacks of cement, to plug back to the base of the producing CO_2 sand. Cementing was done by the Halliburton Oil Well Cementing Company using Monolith Ideal cement.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Mountain Fuel Supply Company

Address P. O. Box 1129

Rock Springs, Wyoming

By W. T. Stephenson

Title Vice-President

Approved JUN 25 1946

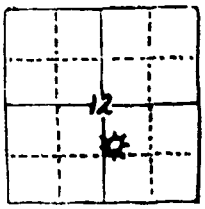
C. Stanton Smith
District Engineer

U. S. GOVERNMENT PRINTING OFFICE 10—8437-1

Form 9-331a
(March 1942)

(SUBMIT IN TRIPLICATE)

Land Office Salt Lake
Lease No. 026100-A
Unit



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ORIGINAL FOR... R JUN 25 1946

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OIL & GAS DIV.
JUN 17 1946
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SALT LAKE CITY, UTAH

SUNDRY NOTICES AND REPORTS ON WELLS

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NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			
Notice of Setting and Cementing 7" OD		Casing	

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Farnham Dome Well #1 May 26, 1946, 19

Well No. X 4 is located 1540 ft. from {N/S} line and 2310 ft. from {E/W} line of sec. 12

NW SE Sec. 12 (¼ Sec. and Sec. No.) | 15S (Twp.) | 11E (Range) | S L M (Meridian)

Farnham Anticline (Field) | Carbon (County or Subdivision) | Utah (State or Territory)

The elevation of the derrick floor above sea level is 5850 ft. approx.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

7" OD 23# J-55 8 rd. Thd. Spang Casing landed and cemented as follows:

1 - Halliburton Float shoe	1.62' Gr.	1.00' Net
98 pcs. 7" OD 23# J-55 Casing	3155.06' "	3132.43' "
	3156.68' "	3133.43' "

Landed at 3155.88', 15.45' below top of Kelly drive bushings. The shoe and the first 3 jts. of casing were spot welded above and below the collars. Cemented with 250 sacks Monolith Ideal Cement by Halliburton Oil Well Cementing Company. The plugs were bumped at 750# pressure

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Mountain Fuel Supply Company

Address Box 1129

Rock Springs, Wyoming

By W. T. Pugsley

Approved JUN 25 1946

Title Vice-Pres.

C. A. Hauptman
District Engineer

U. S. GOVERNMENT PRINTING OFFICE 16—6487-1

Form 9-331 a
(March 1942)

(SUBMIT IN TRIPLICATE)

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Lease No. 02622...
Unit

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NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			
Notice of Setting 2 1/2" Tubing			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Farnham Dome Pet. Co. Well #1 June 3, 1946, 19

Well No. X4 is located 1540 ft. from N line and 2310 ft. from E line of sec. 12

NW SE Sec. 12 (¼ Sec. and Sec. No.) 15S (Twp.) 11E (Range) S.L.M. (Meridian)

Farnham Anticline (Field) Carbon (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 5550 ft. approx.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

3132.39', net, 3150.09', gross, of 2 1/2", 6.5# Upset J-55 tubing, was set at 3137.99', 5.6' below top of rotary table. The bottom joint is open ended w/18 round perforations 1" in diameter.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Mountain Fuel Supply Company

Address Box 1129

Rock Springs, Wyoming

By [signature]

Title Vice-President

Approved JUN 25 1946

[signature]
District Engineer

U. S. GOVERNMENT PRINTING OFFICE 16—8437-1

JUN 2 3 1946

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DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

U. S. GEOLOGICAL SURVEY
OIL & GAS DIV.
JUN 27 1946
RECEIVED
SALT LAKE CITY, UTAH

				12			
				☼			

LOCATE WELL CORRECTLY

LOG OF OIL OR GAS WELL

Company Mountain Fuel Supply Co. Address Box 1129, Rock Springs, Wyo.

Lessor or Tract Carbon Dioxide & Chemical Field Farnham State Utah

Well No. X 4 Sec. 12 T. 15 R. 11 Meridian S.L. County Carbon

Location 1540 ft. {N.} of S Line and 2310 ft. {W.} of E Line of Sec. 12 Elevation 5850 (Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed W. T. [signature]

Date June 25, 1946 Title Vice President

The summary on this page is for the condition of the well at above date.

Commenced drilling August 3, 19 45 Finished drilling June 5 19 46

May (corr.)

OIL OR GAS SANDS OR ZONES

(*Denote gas by G*)

No. 1, from 3133 to 3894 (G) No. 4, from .... to ....

No. 2, from .... to .... No. 5, from .... to ....

No. 3, from .... to .... No. 6, from .... to ....

IMPORTANT WATER SANDS

No. 1, from .... to .... No. 3, from .... to ....

No. 2, from .... to .... No. 4, from .... to ....

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
12½"	50#	10	[illegible]	243'10"	Guide				Cement
7"	23#	8	J55	3155'11"	Float		3131	3155	Production
2"	6.5#	8	J55	3138'	Perf.				Production

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
12½"	243'10"	175	Halliburton		
7"	3155'11"	250	Halliburton		

FOLD | MARK

PLUGS AND ADAPTERS

Heaving plug—Material .... Length .... Depth set ....

Adapters—Material .... Size ....

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

Rotary tools were used from 270 feet to 5722 feet, and from .... feet to .... feet

Cable tools were used from 0 feet to 270 feet, and from .... feet to .... feet

DATES

........, 19.... Put to producing ...., 19....

The production for the first 24 hours was .... barrels of fluid of which ....% was oil; ....% emulsion; ....% water; and ....% sediment. Gravity, °Bé.

CO_2 If gas well, cu. ft. per 24 hours 3,250,000 Gallons gasoline per 1,000 cu. ft. of gas ....

Rock pressure, lbs. per sq. in. ....

EMPLOYEES

Fred A. Diehl, Driller A. D. Cockrell, Driller

........, Driller ...., Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION

[illegible] Well No. 1

[illegible] 2310' Fr. S.L. 2310' Fr. E.L. [illegible]

[illegible] R.B. [illegible]

Commenced May 27, 1945 Completed June 5, 1946

Total Depth 5722'

[illegible] Production from Perf. 3131 - 3155

[illegible] 3135 - 3155 in upper Coconino formation

[illegible] 13", 50 #, 10 rd. thd. National Lap weld cemented with 175 sax Red Devil cement at 243'10". 7" O.D., 23# [illegible] rd. thd. Spang J-55 csg. cemented with 250 sax Monolith Ideal cement at 3155.88' below rotary bushing. 2½", 6.50# upset tubing landed at 3138'. Perforations from 3131 - 3155.

FORMATION RECORD

MORRISON FORMATION	From	To
Shale, variegated purple to green, soft gummy, with calcite seams.	0	40
Shale, variegated with some interbedded gray to brown limestone	40	55
Shale, dark maroon, gray, green and white, sandy in lower part.	55	135
Sandstone, purple, fine-grained, silty.	135	140
Shale, purple to green, sandy, with some micro crystalline limestone	140	160
Sandstone, purple to gray, fine to coarse-grained, conglomeratic.	160	205
Shale, variegated, calcareous, sandy.	205	340
Sandstone, fine- to medium-grained calcareous	340	365
Shale, variegated, purple to green calcareous with some thin white sandstones	365	450
Limestone, brown; and sandstone, cherty, slightly calcareous	450	500
Shale, gray to black, non-calcareous	500	520
Limestone, brown, finely-crystalline	520	555
Shale, green to gray, some maroon, hard, brittle	555	650
Limestone, brown and gray, finely-crystalline, hard, dense, sandy	650	700
TOP SALT WASH SANDSTONE MEMBER		

FORMATION RECORD

	From	To
Sandstone, white to gray, very calcareous, with beds of green to maroon shale.	700	800
Shale, gray to green and lavender, cherty in spots, calcareous.	800	865
TOP OF SUMMERVILLE FORMATION		
Shale, chocolate-brown to maroon, cherty, with calcite seams.	865	1020
Sandstone, buff to reddish-brown, silty and limestone, maroon, sandy.	1020	1040
Shale, maroon to chocolate brown, silty, calcareous, with a 20' white sandstone at the base.	1040	1160
TOP CURTIS FORMATION		
Sandstone, gray to white, medium-grained, glauconitic, calcareous.	1160	1320
TOP ENTRADA FORMATION		
Sandstone and Shale, maroon and dark red.	1320	1390
Limestone, gray, dolomitic.	1390	1410
Sandstone, reddish-brown, fine-grained, silty, interbedded with shale, maroon to chocolate brown, sandy.	1410	1570
Sandstone, reddish-brown, fine-grained, silty.	1570	1617
TOP CARMEL FORMATION		
Limestone, brown, finely-crystalline, dolomitic, silty.	1617	1670

FORMATION RECORD

	From	To
Sandstone, red, purple and white, silty, and shale, red, sandy.	1670	1710
Shale, maroon, chocolate brown, purple and green, slightly calcareous, very sandy, and sandstone, red, very fine-grained, micaceous, calcareous; gypsiferous in lower part.	1710	2038
TOP NAVAJO FORMATION		
Sandstone, greenish-gray to white, fine-grained, slightly glauconitic, calcareous, with argillaceous streaks. Lower 30' shaly.	2038	2200
TOP KAYENTA FORMATION		
Sandstone, salmon-pink and reddish-brown, fine- to medium-grained, calcareous, with some gypsum and red to green shale.	2200	2354
TOP WINGATE FORMATION		
Sandstone, white to pink, and reddish-brown, fine-to medium-grained, argillaceous, calcareous.	2354	2490
Shale, dark reddish-brown, hard, brittle, sandy, calcareous, with some red sandstones and gypsum streaks.	2490	2590
TOP CHINLE FORMATION		
Sandstone and shale, maroon to green, bentonitic and very gypsiferous.	2590	2710
TOP MOENKOPI FORMATION		
Shale, gray, fine-grained, sandy, calcareous, hard, dense, gypsiferous	2710	2840
Gypsum, white, granular, with some dark gray shale.	2840	2860
Shale, gray to red, fine-grained, calcareous and gypsiferous.	2860	2920

FORMATION RECORD

	From	To
Sandstone, gray, very fine-grained, silty, gypsiferous.	2920	2950
Gypsum, white, finely-crystalline, with dark gray to maroon shale.	2950	3035
TOP SINBAD LIMESTONE MEMBER		
Limestone, dark gray, finely-crystalline, very oolitic, with anhydrite seams.	3035	3109
Shale, dark gray, sandy, calcareous, with anhydrite and bentonite, and some oolitic limestone.	3109	3133
TOP COCONINO FORMATION		
Sandstone, light tan to light gray, fine to medium and coarse-grained, dolomitic, hard.	3133	3500
Sandstone, white to light tan, fine to medium-grained with coarse streaks, dolomitic.	3500	3894
TOP RICO FORMATION		
Siltstone, dark red, micaceous, dolomitic, cherty in spots, with interbedded light red sandstones.	3894	4110
Sandstone, pink to gray, very fine to medium-grained, arkosic, micaceous, slightly calcareous, interbedded with dark red shale.	4110	4260
Shale, dark reddish-brown, with sandstone, dark red to gray, fine-grained and siltstone, very micaceous	4260	4430
TOP PENNSYLVANIAN - Hermosa		
Shale, dark gray, very sandy, very calcareous, very micaceous, with streaks of dolomite.	4430	4475
Shale, brownish-red, maroon & green, with calcite and anhydrite; Sandstone, gray to brownish-red, fine-grained.	4475	4605

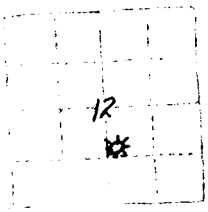
Form 9-331a
(March 1942)

Budget Bureau No. 42-R358
Approval expires 11-30-46.

(SUBMIT IN TRIPLICATE)

Land Office Salt Lake
Lease No. 026100-A
Unit

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL	X	SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Farnham Dome Fed. Co. Well #4 (Mountain Fuel Supply #1) October 16, 1946

Well No. 4 is located 1540 ft. from [N/S] line and 2310 ft. from [E/W] line of sec. 12

NW SE Sec. 12 (¼ Sec. and Sec. No.) 15S (Twp.) 11 E (Range) S.L.M. (Meridian)

Farnham Anticline (Field) Carbon (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 5850 ft. approx.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

This well is apparently making some bottom-hole water. We would like permission to kill the well with water, pull the tubing, and place a "hydromite" plastic plug from 3155' to 3144'. Rerun the tubing, swab, and produce the well as a CO_2 well.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company CARBON DIOXIDE & CHEMICAL COMPANY

Address 415 West 2nd South

Salt Lake City, Utah

By DON BROWN

Title GENERAL MANAGER

Approved OCT 25 1946

C. A. Hauptman

Acting District Engineer

U. S. GOVERNMENT PRINTING OFFICE 16—84378

(CONFIDENTIAL) FARNHAM DOME - Carbon County FEB 1946
12-15S-11E SW NW¼SE¼, Mountain Fuel Supply Company Well No. 1
(Salt Lake 026100-a), Ref. No. 4

STATUS: Drg - T.D. 3815', Coconino (Visited 2-18-46)
(W.T.Nightingale 2-28-46)

REMARKS: Top of Coconino approximately 3115'.
Drilling has been very slow because of abrasive
character of sandstone. Cores of all sands drilled
are taken.

(CONFIDENTIAL) FARNHAM DOME - Carbon County
12-15S-11E SW NW¼SE¼, Mountain Fuel Supply Company Well No. 1
(Salt Lake 026100-a), Ref. No. 4 MAR 1946

STATUS: Drg - T.D. 4775', Hermosa (W.T.Nightingale
4-1-46)

REMARKS: Coconino-Rico contact, 3908'; Rico-Hermosa
contact, 4603'. In a gray lime and dolomite, fairly
hard drilling.

(CONFIDENTIAL) FARNHAM DOME - Carbon County APR 1946
12-15S-11E SW NW¼SE¼, Mountain Fuel Supply Company Well No. 1
(Salt Lake 026100-a), Ref. No. 4

STATUS: Drg - T.D. 5436', Hermosa (W.T.Nightingale
5-2-46)

REMARKS: Drilling in very hard sandy lime.

(CONFIDENTIAL) FARNHAM DOME - Carbon County
12-15S-11E SW NW¼SE¼, Mountain Fuel Supply Company Well No. 1,
(Salt Lake 026100-a), Ref. No. 4

STATUS: Drg - T.D. 5722', Hermosa MAY 1946

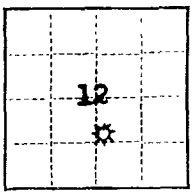
REMARKS: Operator has concluded that test has been
made of Hermosa formation and does not intend to test
deeper. Perhaps influenced somewhat by costly operation
due to extremely hard formation and difficult drilling--
242 8" rock bits used to reach present depth. Preparations
now being made to PB to CO_2 gas sand at 3200' and complete
well as CO_2 producer for the Carbon Dioxice and Chemical
Company.

12-15S-11E FARNHAM DOME - Carbon County JUN 1946
SW NW¼SE¼, Mountain Fuel Supply Company Well No. 1,
(Salt Lake 026100-a), Ref. No. 4 (Visited 6-17-46)

STATUS: GSI - T.D. 5722' Hermosa, PB 3155' Coconino

REMARKS: NEW COMPLETION. Hole PB to 3155'. 3156' 7" O.D. 23# J-55 8 rd. thd. Spang CC with 250 sacks by Halliburton. Gun perforated 3131-3145' with 212 3/4# holes and 3145-3155' with 100 5/8" holes. Although not yet tested, close estimate by operator is that well will produce 3,250,000 cu.ft.p/d of CO_2 gas. Producing horizon, Coconino 3133-3155'. Shut in pressure not yet available. Drilling ceased in May.

Form 9-593
(April 1952)



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CONSERVATION DIVISION

Sec. 12
T. 15 S.
R. 11 E.
S. L. Mer.

INDIVIDUAL WELL RECORD

PUBLIC LAND: Date March 11, 1955 Ref. No. 4

5-yr. exchange lease dated 11-1-54

Land office Salt Lake City State Utah

Serial No. 026100(a) County Carbon

Lessee Farnham Dome Petroleum Co. Field Farnham Dome

Operator *Carbon Dioxice & Chemical Co. District Salt Lake City

Well No. *4 Subdivision SW¼NW¼SE¼

Location 1540 ft. from S. line and 2310 ft. from E. line of sec. 12

Drilling approved July 10, 1945 Well elevation 5850 feet

Drilling commenced August 3, 1945 Total depth 5722 PB 3155 feet

Drilling ceased May, 1946 Initial production 3,250,000 cu. ft.

Completed for production June 5, 1946 Gravity A. P. I.

Abandonment approved , 19 Initial R. P.

Geologic Formations		Productive Horizons		
Surface	*Lowest tested*	*Name*	*Depths*	*Contents*
Morrison	Coconino	Navajo	3133-3155'	CO_2 gas

WELL STATUS

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1945								DST			Drg	Drg
1946	Drg	Drg	Drg	Drg	Drg	GSI						
1949						PGW						

REMARKS *Drilled by Mountain Fuel Supply Company and known as well No. 1.

(see over)

REPLACEMENT

U. S. GOVERNMENT PRINTING OFFICE 16—88057 4

Casing:

244' 12½" cc w/175 sacks
3156' 7" cc w/250 sacks - perforated 3131-3155'
3138' 2½" production string - landed

Formation tops, W. C. Gere, Mineral Classification Branch, Salt Lake City

Morrison	Surface
Salt Wash	520'
Summerville	865'
Curtis	1160'
Entrada	1310'
Fault	1525'
Summerville	1630'?
Curtis	2040'
Entrada	2200'
Carmel	2700'
Navajo	3130'
Kayenta	3400' ?
Wingate	3485'?
Chinle	3890'
Moenkopi	4080'?
Sinbad	4695'
Kaibab	5020'
Coconino	5250'

[redacted] Supply Company
[redacted] Dome Petroleum Company
[redacted] hole

Sec. 12, T15S, R11E
Carbon County, Utah

Elevation: 5821 D.F.

T 15 S R 11 E Sec 12

SAMPLE LOG

(Samples start in near top of the Morrison formation)
set surface casing @ 256'

DRILLER

FROM	TO	DESCRIPTION
0	40	Missing.
40	85	Mudstone - light gray, grayish-green, some blue-green, soft, soapy, some light gray very thin muddy, earthy to finely crystalline limestone streaks.
85	100	Clay - light gray and light buff, soft, marly.
100	115	Marl - light buff to light gray, soft, clayey.
115	125	Clay - light buff to light gray, soapy, soft, marly,
125	135	Mudstone - light gray and grayish-green, soft, soapy, some light gray, very finely crystalline to earthy limestone streaks.
135	140	Shale - light gray and brownish-gray, silty, muddy, slightly limey.
140	150	Shale - light gray, grayish-green , some brown and maroon, variegated, soft, muddy, some light gray, earthy limestone streaks.
150	160	Limestone - light gray, finely crystalline to earthy, muddy, some light gray muddy shale.
160	170	Mudstone - grayish-green, light gray, some maroon, shaley, very limey, slightly silty and sandy, some embedded rounded quartz grains, also white, light gray, and red embedded chert grains near base.
170	195	Chert Conglomerate - approximately 95% silico, consists almost entirely of vari-colored chert grains and pebbles, including white, light gray, ochre, red, yellow, blue-gray and brown fragments, some flint and jasper, also silicified limestone, some thin white to light gray frosted quartz sand streaks, hard, may have slight porosity.
195	200	Chert Conglomerate - mainly white, and light gray chert grains and pebbles, appears in part to be a very silicified limestone, very hard, 95% silico, some yellow and yellow-brown chert, no apparent porosity.
200	210	Mudstone - light yellow-red, brown, ochre, green, grey and maroon, variegated, soft, soapy, clayey.
210	215	Shale - light gray and grayish-green, muddy, limey, hard.
215	225	Shale - light gray and grayish-green, muddy, silty, sandy with embedded rounded quartz grains, some silty limey shale streaks.
225	235	Mudstone - light gray and greenish-gray, soft, soapy, some ochre and light maroon streaks.
235	245	Mudstone - light gray, green, ochre, brick red and maroon, variegated, clayey, soft, soapy.

[illegible]	TO	DESCRIPTION
[illegible]	255	Mudstone - light buff, light gray, soapy, silty, sandy.
[illegible]	280	Mudstone - light gray, medium gray and grayish-brown, shaley, silty, slightly sandy, also silty, light gray limestone streaks.
280	270	Mudstone - light gray, green, purple and maroon and brown, variegated, soft, clayey.
270	285	Shale - light gray and grayish-green, platey, hard, limey, some limestone streaks, few chert fragments.
285	310	Mudstone - light gray, some grayish-green, soft, soapy.
310	330	Shale - light gray, some grayish-green, soft, maroon, some brown, muddy, some white, limey sand streaks.
330	340	Shale - dark gray and some dark green, soft, partly fissile.
340	370	Mudstone - light gray, grayish-green, some pink, brown and maroon streaks, silty, sandy with some light gray fine limey sand streaks, also some larger embedded quarts and chert grains.
370	395	Shale - light to medium gray and dark green, muddy, fissile, some light gray limey shale, few thin sandy streaks.
395	415	Mudstone - light gray, some green, soft, soapy, some white bentonitic mudstone.
415	425	Mudstone - light gray, same as above, some light gray, some thin muddy earthy limestone streaks.
425	455	Mudstone - light gray, light buff and green, some maroon, soft, few silty streaks.
455	490	Mudstone - light gray and greenish-gray, partly limey, slightly silty with sandy streaks.
490	510	Mudstone - light gray, some greenish-gray, soft, partly limey.
510	530	Mudstone - same, limey, silty, sandy, becoming increasingly sandy towards base.
530	550	Sandstone - light buff to light gray, fine grained, mainly well sorted, sub-rounded quartz grains, limey, hard, no porosity, some light gray sandy limestone lenses.
550	560	Mudstone - light gray and light grayish-green, some maroon also light gray limey streaks.
560	570	Missing.
570	640	Mudstone - light gray, some grayish-green and maroon mudstone, limey with few light gray limey streaks.
640	650	Limestone - light gray, partly finely crystalline, earthy, muddy, hard.
650	690	Mudstone - mainly light gray, some maroon and light grayish-green, mottled, limey, some light gray, earthy, muddy limey streaks near base.
690	700	Mudstone - light grayish-green and light gray, soft, soapy.

FROM	TO	DESCRIPTION
700	720	Sandstone - light gray, fine grained, mainly well-cemented, hard, fair sorted, sub-angular to sub-rounded quartz, limey with sandy limestone streaks, no apparent porosity.
720	730	Mudstone - light gray, interbedded with light gray limey sand streaks, some light gray sandy limestone streaks.
730	740	Sandstone - white to light gray, fine grained, hard, limey with sandy limestone streaks, no apparent porosity.
740	760	Mudstone - light gray, soft, with some thin white to light gray, fine limey sand streaks.
760	770	Sandstone - white to light gray, fine grained, mainly well sorted, sub-rounded quartz grains, limey, hard, no apparent porosity.
770	780	Mudstone - light gray, soft, partly limey, interbedded with white to light buff fine grained hard limey sand lenses.
780	785	Sandstone - light gray, fine to medium, speckled, mainly fair sorted sub-angular to sub-rounded quartz, some black chert, well cemented, hard, limey, pyrite, few coal fragments, no apparent porosity.
785	805	Conglomerate - largely composed of light gray, greenish-gray, white and black chert grains and pebbles, some interbedded sand streaks, hard, slight porosity.
805	815	Mudstone - light gray and grayish-green, few maroon fragments, limey, some earthy, muddy limestone streaks.
815	830	Sandstone - white to light buff, fine grained, hard, mainly clean, sub-rounded, well sorted quartz grains, lime cement, slight porosity.
830	845	Mudstone - light gray and grayish-green, some maroon, silty, some sandy streaks.
845	855	Sandstone - white to light buff, fine to medium grained, clean, hard, mainly sub-rounded, fair sorted quartz, slight porosity.
855	865	Mudstone - light gray, soft, soapy, gypsiferous, with some white alabaster and crystalline gypsum streaks.
		TOP SUMMERVILLE FORMATION
865	880	Shale - chocolate brown and maroon, soft, slightly gypsiferous, some thin silty chocolate brown silty sand streaks.
880	910	Shale - same, gypsiferous, some light gray sandy mudstone and light gray and chocolate brown silty sandy streaks.
910	930	Shale - maroon, silty, some chocolate brown.
930	950	Shale - same, hard, very silty with occassional sandy streaks, gypsum streaks with some anhydrite.
950	960	Shale - maroon and chocolate brown, very silty, sandy with maroon, few light gray sand streaks, some anhydrite and gypsum.

		DESCRIPTION
[illegible]	980	Shale - chocolate brown, partly silty, some anhydrite and gypsum veinlets.
[illegible]	1040	Shale - chocolate brown, some maroon, silty, slightly sandy, few anhydrite and gypsum veinlets.
1040	1070	Shale - chocolate brown and reddish brown, hard, limey, some silty streaks, some anhydrite and gypsum fragments.
1070	1080	Missing.
1080	1140	Shale - reddish-brown and chocolate brown, hard, limey, occassional anhydrite veinlets.
1140	1160	Shale - chocolate brown, some maroon, soft.
		TOP CURTIS FORMATION
1160	1200	Sandstone - light greenish-gray, fine grained, silty and shaley near top, glauconitic, very limey with very slight limey streaks mainly sub-rounded, well sorted, fair cemented quartz grains, hard, no apparent porosity.
1200	1300	Sandstone - light greenish-gray, fine grained, glauconitic, less limey than above, samples contain mainly cavings.
1300	1310	Sandstone - light gray and light greenish-gray, fine grained, mainly sub-rounded fair sorted quarts, very slightly glauconitic, no apparent porosity, some light gray muddy shale.
1310	1320	Shale - light gray and light greenish-gray, soft, muddy, slightly silty, and partly limey, also grayish-green sandstone.
		TOP ENTRADA SANDSTONE
		Note: Entrada samples are almost entirely cavings from the Summerville and Curtis formations. The following Entrada descriptions are based soley on a few fragments and from electrical log characteristics.
1320	1340	Sand - light chocolate-red, fine grained, very silty, limey, shaley.
1340	1360	Missing.
1360	1380	Shale - light red and chocolate brown, calcareous, muddy, silty, slightly sandy.
1380	1390	Missing.
1390	1400	Sandstone - chocolate brown and maroon, some light gray, fine grained, silty calcareous, no apparent porosity, some maroon and chocolate brown shale.
1400	1420	Shale - light red, maroon and chocolate red, silty, calcareous.
1420	1430	Sandstone - light red and reddish-brown, fine grained, silty, interbedded with maroon and chocolate brown, calcareous, hard shale.
1430	1470	Shale - maroon, and chocolate brown, silty, slightly calcareous, slightly sandy with interbedded reddish-brown, silty, fine grained, shaley sandstone streaks.
1470	1520	Sandstone - light red, some white and light gray, fine grained, hard, calcareous, no apparent porosity, some thin maroon and chocolate brown shale streaks

FROM	TO	DESCRIPTION
1520	1560	Shale - maroon and chocolate brown, silty, sandy, calcareous, with thin reddish brown sandstone streaks.
1560	1617	Shale - maroon and reddish-brown, silty, slightly sandy, interbedded with reddish-brown and light gray, fine grained sand lenses.
		TOP CARMEL FORMATION
1617	1620	Limestone - light greenish-gray, finely crystalline, silty, sandy, some embedded light pink quartz grains, also streaks of white anhydrite.
1620	1630	Limestone - light greenish-gray, shaley, some interbedded white anhydrite streaks, also light green and grayish-green, limey shale.
1630	1640	Shale - light green and grayish green, limey, thin anhydrite streaks.
1640	1670	Limestone - light greenish-gray, finely crystalline to dense, partly earthy, hard, very shaley with considerable limey shale, also some anhydrite and gypsum.
1670	1700	Shale - light to medium gray and greenish-gray, red limey, partly silty, slightly sandy.
1700	1730	Shale - maroon and chocolate-red, hard, some anhydrite and gypsum streaks.
		Fault with 205' of throw is correlated, from electrical log, cutting section @ 1730'.
1730	1760	Sandstone - light gray and maroon and white, fine grained, mainly well cemented, sub-rounded quartz grains, hard very limey, no apparent porosity, some interbedded light gray shale, sandy, limestone, gypsum and anhydrite near base.
1760	1770	Shale - maroon and chocolate red, partly silty, some gypsum and anhydrite.
1770	1795	Limestone - light gray and light red, finely crystalline, partly silty and sandy, with pink quartz grains, hard, some gypsum "satin spar" and anhydrite.
1795	1820	Shale - maroon and chocolate brown, limey with light red and light gray shaley limestone streaks, also anhydrite and gypsum.
1820	1830	Limestone - light gray and light pink, finely crystalline, sandy with limey sand streaks, also interbedded gypsum and anhydrite.
1830	1870	Shale - maroon and chocolate brown, hard with some interbedded shaley limestone streaks, some very thin streaks of anhydrite and gypsum.
1870	1910	Shale - maroon and chocolate brown, hard, some anhydrite and gypsum.
1910	1930	Shale - maroon, chocolate brown, and light gray, limey, hard, with light gray platey shaley limestone.
1930	1945	Sandstone - red, fine grained, very calcareous, with sandy limestone streaks interbedded with maroon and red limey shale.
[illegible]	[illegible]	Shale - maroon, chocolate brown and light gray gray, [illegible], with thin streaks of light gray limestone, some anhydrite and gypsum.

FROM	TO	DESCRIPTION
1965	2020	Shale - maroon and chocolate brown, limey with occassional thin limestone streaks, also limey sand streaks, some anhydrite and gypsum.
2020	2038	Shale - maroon and grayish-green, slightly calcareous, some anhydrite.
		TOP NAVAJO SANDSTONE
2038	2055	Sandstone - light gray and greenish-gray, fine grained, limey, mainly well cemented, sub-rounded to round quartz grains, hard, slightly glauconitic, some black tar specks, no apparent porosity.
		Correlation of electrical logs indicate 40 foot fault @ approximately 2055.
2055	2080	Sandstone - light gray, white and greenish-gray, calcareous, partly speckled with some red, brown and black grains, softer than above, also black tar specks, some very slight oil staining in few fragments, fair porosity.
2080	2150	Sandstone - light gray, medium grained, some coarser streaks, sub-rounded, fair sorted quartz grains, calcareous cement, slightly glauconitic, clean, partly speckled, some black tar specks, good porosity, few very thin light gray shale breaks.
2150	2170	Sandstone - white to light gray, medium grained, same as above, fair to good porosity.
2170	2190	Sandstone - light gray and light greenish-gray, fine grained, sub-angular to sub-rounded quartz grains, well sorted, slightly glauconitic, calcareous, black tar specks, hard, no apparent porosity, some calcareous light gray shale.
2190	2200	Sandstone - white to light gray, coarse grained, speckled, sub-rounded to rounded grains, some red, brown and black grains, well cemented, hard, very calcareous, slight porosity.
		TOP KAYENTA FORMATION
2200	2220	Sandstone - reddish-brown, and brown, fine to medium grained, well sorted, sub-rounded quartz grains, calcareous cement, medium hard, no apparent porosity, some red and maroon interbedded shale streaks.
2220	2230	Sandstone - salmon pink, some light reddish-brown, fine to medium grained, hard, some black tar specks.
2230	2240	Sandstone - light buff, light red, light gray, white and salmon pink and medium grained calcareous, interbedded with light gray and grayish-green limey shale.
2240	2290	Sandstone - light reddish-brown and salmon pink, fine to medium grained, mainly well sorted, sub-rounded quartz, some black tar specks, calcareous, some porosity, few gray-green limey shale streaks. some gypsum fragments.
2290	2300	Sandstone - same as above, some interbedded maroon and chocolate brown and grayish green shale streaks, some gypsum and anhydrite.
2300	2320	Sandstone - light salmon pink and light reddish-brown and light maroon, fine to medium grained, mainly well sorted sub-rounded quartz grains, calcareous, hard, some slight porosity, also thin light gray and maroon shale breaks.
2320	2354	Sandstone - SAME as above, interbedded with GRAYISH green SHALE. SOME CRYSTALLINE CALCITE

FROM	TO	DESCRIPTION
		TOP WINGATE FORMATION
2354	2390	Sandstone - white, light gray, pink and light reddish-brown, fine to medium grained, similar to above, sub-rounded to rounded grains, calcareous, hard, no apparent porosity.
2390	2400	Sandstone - reddish-brown, pink, light gray and white, fine to medium grained, mainly sub-rounded to rounded, well sorted quartz grains, hard, calcareous, slight porosity, some interbedded thin streaks of reddish-brown, maroon, gray and grayish-green, calcareous shale.
2400	2430	Shale - maroon and chocolate brown, silty, partly sandy with light pink and light reddish-brown, fine to medium grained sand lenses.
2430	2470	Sandstone - light pink, white and light reddish-brown, fine to medium grained, calcareous, hard, mainly sub-rounded to well rounded quartz grains, some very thin maroon silty shale breaks, some crystalline calcite streaks.
2470	2490	Sandstone - pink to reddish-brown, fine to medium grained, calcareous, hard, no apparent porosity.
2490	2500	Shale - maroon, reddish-brown, and brown calcareous, very sandy with light pink and light reddish-brown sand streaks.
2500	2540	Sandstone - pink and light red, fine grained, silty, mainly well sorted sub-rounded quartz, calcareous, hard, slightly shaley, with some maroon and reddish-brown very sandy shale, some anhydrite and gypsum.
2540	2570	Shale - maroon, muddy, clayey, some interbedded light red sand streaks similar to above.
2570	2590	Shale - maroon and green, hard, some interbedded lenses of pink and reddish-brown fine grained sandstone.
		TOP CHINLE FORMATION
2590	2630	Sandstone - salmon red, fine grained, slightly calcareous, interbedded with light gray, green, and maroon, clayey, bentonitic, shale, some gypsum and calcite streaks.
2630	2660	Shale - maroon, gray, grayish-green and purple, variegated, also interbedded streaks of salmon, red shaley, calcareous sandstone, some gypsum fragments.
2660	2670	Sandstone - reddish-brown, fine grained, hard, silty, calcareous, some green and maroon shale, gypsiferous.
2670	2690	Shale - maroon and reddish-brown, some green muddy shale, very sandy with some gypsum.
2690	2700	Sandstone - reddish-brown, fine grained, silty, hard, very shaley, interbedded with considerable maroon shale.
		TOP MOENKOPI FORMATION
2700	2730	Shale - medium gray, hard, limey, silty, interbedded with some grayish-green shaley limestone, also interbedded thin streaks of bypsum and anhydrite.
2730	2750	Shale - medium gray, very limey with shaley limestone streaks, same as above, silty, slightly sandy, also much interbedded GYPSUM AND anhydrite.

		DESCRIPTION
[illegible]	2770	Shale - light to dark grey, very limey with shaley limestone streaks, silty, very sandy, anhydrite and gypsum.
2770	2775	Shale - light to medium gray and greenish-gray, limey, sandy.
2775	2790	Sandstone - pint, reddish-brown, also light gray limey sand streaks, fine grained, mainly fair sorted, sub-rounded quartz, hard, calcareous cement, no apparent porosity, interbedded with shale as above and some anhydrite and gypsum.
2790	2830	Shale - dark gray, some maroon and mottled, hard, limey, silty and slightly sandy, considerable thin gypsum and anhydrite streaks.
2830	2835	Sand - light red and reddish brown, silty, hard, calcareous, interbedded with anhydrite and gypsum streaks.
2835	2845	Anhydrite - white, hard, sugary, finely crystalline, some gypsum interbedded with thin streaks of dark gray shale.
2845	2870	Limestone - light to medium gray, very finely crystalline, hard, platey, shaley with considerable medium to dark gray limey shale.
2870	2880	Shale - medium to dark gray, limey, hard, silty, also light red, pink and reddish-brown sand lenses, considerable anhydrite and gypsum, some light gray and pink limey fine grained sand lenses.
2880	2890	Shale - light to medium to dark gray, partly calcareous, sandy with light greenish-gray sand streaks, anhydrite streaks.
2890	2900	Anhydrite - white, hard, finely crystalline, sugary, some gray and maroon mottled limey shale.
2900	2910	Anhydrite - white, finely crystalline, sugary, hard.
2910	2920	Shale - dark gray, limey, hard, some dark gray shaley limestone, also anhydrite and gypsum.
2920	2930	Sandstone - light greenish-gray, some maroon, very silty, very fine to fine grained, hard, limey, shaley with some sandy light gray to medium grey shale, also anhydrite and gypsum.
2930	2950	Shale - medium to dark gray, also light greenish-gray sandy, limey siltstone, some anhydrite and gypsum.
2950	2970	Anhydrite - white and pink, finely crystalline, sugary, hard, some gypsum, some dark gray interbedded shale.
2970	2980	Shale - dark red and maroon, hard, silty, some dark gray mottled shale, considerable anhydrite and gypsum.
2980	2990	Anhydrite - white, approximately 70%, same as before, and 30% maroon and medium grey silty shale.
2990	3000	Sandstone - light red and maroon, fine to medium grained, hard, mainly well sorted, sub-rounded quartz grains, calcareous, few streaks of maroon, sandy shale, considerable anhydrite and gypsum streaks.

FROM	TO	DESCRIPTION
3000	3020	Sandstone - light gray and light greenish gray, very fine to fine grained, calcareous, very silty, impart limey, siltstone, very silty, hard, no porosity, interbedded with light gray silty shale.
		TOP KAIBAB LIMESTONE
3020	3030	Limestone - dark gray, very finely crystalline, hard, argillaceous, very shaley.
3030	3040	Limestone - light to dark gray, finely crystalline, oolitic with dark gray oolites.
3040	3050	Sandstone - white, fine grained, mainly well sorted sub-rounded quartz grains, limey, no porosity.
3050	3060	Limestone - medium to dark grey, finely crystalline, hard, silty, some interbedded, very limey dark gray shale.
3060	3070	Limestone - medium to dark gray, finely crystalline, platey, oolitic with dark gray to black oolites, also dark gray very limey shale, some anhydrite.
3070	3080	Limestone - dark gray, finely crystalline, platey, partly argillaceous, hard, shaley, with dark gray limey shale, some very thin streaks anhydrite.
3080	3090	Limestone - same, some medium to dark gray oolitic limestone, also slightly sandy streaked.
3090	3105	Limestone - light to dark gray, finely crystalline, silty, oolitic with dark gray oolites.
3105	3115	Sandstone - light greenish-gray, fine grained, silty, limey, hard, no porosity.
3115	3120	Shale - light gray, limey, silty, sandy.
3120	3133	Limestone - medium gray, finely crystalline, shaley, also reddish-brown shale.
		TOP COCONINO FORMATION
3133	3140	Sandstone - light to medium gray, medium to coarse grained, sub-angular to sub-rounded quartz grains, calcareous cement, fair sorting, hard, fair porosity.
3140	3145	Sandstone - gray, same as above with black tar coating many grains, fair porosity.
3145	3150	Sandstone - gray and light brown, fine to medium grained, well sorted, clear quartz grains, hard calcareous cement, fair porosity - CO_2 gas zone.
3150	3155	Sandstone - medium brown, medium grained, mainly sub-rounded, clear, light gray and white quartz, well sorted, calcareous cement, fair porosity, CO_2 gas zone, fair staining.
3155	3165	Shale - dark gray, hard, very limey, silty, also streaks of brown sandstone as above, some dark grey shaley limestone.
3165	3170	Sandstone - tan and light brown, medium grained, mainly sub-rounded, well sorted white, light gray and clear quartz, some larger grains, siliceous, dolomitic cement, hard, slight porosity, slight staining.

FROM	TO	DESCRIPTION
3170	3192	Sandstone - tan, medium grained, some larger rounded grains, same as above, black tar specks, pyrite.
CORED		Core #1 3192 - 3194 - Recovered 1.3'.
3192	3194	Sandstone - light gray, fine grained, mainly sub-rounded well sorted quartz grains, hard, siliceous, dolomitic cement, pyrite, no porosity.
		Core #2 3194 - 3196 - Recovered 1.5'.
3194	3196	Sandstone - same as above.
DRILLED		
3196	3210	Sandstone - tan to light gray, fine grained, well cemented, same as above.
3210	3220	Sandstone - white, tan and light buff, fine to medium grained, rather well cemented, same as above.
3220	3261	Sandstone - light tan, medium grained, mainly sub-rounded, fair sorted grains, some larger rounded grains, calcite streaks, slight porosity.
CORED		Core #3 3261 - 3263 - Recovered 9/10'.
3261	3263	Sandstone - light tan, medium grained, mainly well sorted, sub-rounded quartz grains, well-cemented, hard, some porosity.
3263	3295	Sandstone - light tan to light buff, medium grained, some coarser streaks, hard, slight porosity, pyrite.
3295	3320	Sandstone - same as above, mainly caving.
3320	3330	Sandstone - light gray and gray, fine to medium grained, some coarser streaks, mainly fair sorted, sub-rounded quartz grains, dolomitic, siliceous cement, some pyrite, some porosity.
3330	3340	Sandstone - light tan, medium grained, same as before.
3340	3350	Sandstone - light tan and light gray, medium grained, some coarse streaks, well cemented, hard.
3350	3355	Sandstone - light tan, medium to coarse grained, fair sorting, mainly sub-rounded quartz grains, hard, some porosity.
3355	3365	Sandstone - light tan, fine to coarse grained, same as above.
3365	3400	Sandstone - white to light tan, medium grained, hard, quartzitic, no porosity.
3400	3450	Sandstone - white to light tan, some light gray, medium grained, mainly fair sorted, sub-rounded quartz grains, siliceous dolomitic cement, hard, no apparent porosity, pyrite.
3450	3460	Sandstone - white, light tan and light gray, medium to coarse grained, same as above.
3460	3487	Sandstone - white to light tan silt, gray, fine to medium grained, hard, pyrite.

FROM	TO	DESCRIPTION
CORED		Core #4 3487 - 3488 Recovered .5'
3487	3488	Sandstone - white to light tan, fine to medium grained, sub-rounded, well sorted quartz grains, dolomitic siliceous cement, pyrite, hard, slight porosity.
3488	3495	Sandstone - same as above.
3495	3555	Sandstone - white, medium grained, clean, well sorted, sub-rounded quartz grains, pyrite cube, slight porosity.
3555	3565	Missing.
3565	3580	Sandstone - white, medium grained, same as above.
3580	3605	Sandstone - white, medium grained, mainly well sorted, sub-rounded quartz grains, dolomitic cement fair porosity.
3605	3610	Sandstone - same, some green, muddy shale.
3610	3650	Sandstone - white to light tan, medium grained, some coarser streaks, dolomitic, slight porosity.
3650	3680	Sandstone - white to light tan, medium grained, same as above.
3680	3700	Sandstone - white, light tan and light gray, medium grained, dolomitic cement, hard, no apparent porosity.
3700	3770	Sandstone - white to light tan, fine grained to medium grained, mainly sub-rounded, fair sorted quartz grains, hard, pyrite, dolomitic cement, slight porosity.
3770	3800	Sandstone - white to light tan, fine to medium grained, hard, quartzitic appearance, pyrite, no porosity.
3800	3840	Sandstone - white and light tan, medium grained, hard, some porosity.
3840	3880	Sandstone - white to light tan, medium grained, some coarser streaks, mainly fair sorted sub-rounded quartz grains, clean, hard, quartzitic appearance, dolomitic cement, slight porosity.
3880	3890	Sandstone - white to tan, fine to medium grained, hard, dolomitic quartzitic, no apparent porosity.
		TOP RICO FORMATION
3890	3908	Shale - brick red, platey, thinly bedded, slightly sandy with reddish brown to pink, fine grained sand streaks, also thin streaks of light gray, red and tan, finely crystalline, sugary dolomite, also green dolomitic shale.
CORED		Core #5 3908 - 3909 Recovered .7'
3908	3909	Dolomite - green, brick red, maroon and light gray, mottled, shaley, finely crystalline, argillaceous, hard, dense.

FROM	TO	DESCRIPTION
3909	3920	Sandstone - reddish-brown and pink, fine to medium grained, fair sorted, sub-angular to sub-rounded quartz grains, very dolomitic, hard, no porosity, also interbedded light gray, grayish-green, finely crystalline dolomite, and considerable brick red platey shale, also maroon platey shale.
3920	3945	Sandstone - light red to red, fine grained, very calcareous and dolomitic at top, hard, arkosic, silty with light red, limey, dolomitic siltstone, some dark red and brick red platey shale and pink and reddish-brown silty dolomite.
3945	3960	Shale - dark red and maroon, micaceous, platey, dolomitic, partly silty with dark red, slightly sandy, dolomitic siltstone, also grayish-green and pink finely crystalline partly silty dolomite.
3960	3965	Sandstone - light red, fine grained, dolomitic, hard, tight, no porosity, some dark red shale and dolomitic siltstone.
3965	3970	Dolomite - white, light buff and light gray, finely crystalline to dense, hard.
3970	3980	Sandstone - light red, pink and light reddish-brown, fine grained, dolomitic, hard, no porosity, also interbedded dark red and green mottled, micaceous shale.
3980	3990	Sandstone - white to light gray, some light pink, coarse grained, poorly sorted angular to r und cuartz grains, many frosted grains, highly calcareous, hard, no porosity.
CORED		Core #6 3990 - 3992 Recovered 2'
3990	3992	Shale - dark red and green, platey, dolomitic, hard.
3992	4000	Shale - same as above with some light red fine grained, calcareous sandstone streaks, also very thin anhydrite streaks.
4000	4030	Siltstone - dark red and maroon, hard, very shaley, with considerable dark red, calcareous shale, very shaley, calcareous, with some slightly sandy streaks, also interbedded anhydrite and gypsum.
4030	4040	Shale - dark red and maroon and olive drab, calcareous, platey, some anhydrite and gypsum.
4040	4055	Shale - dark red and green and olive drab, micaceous, calcareous, some light gray limestone streaks.
4055	4060	Shale - same as above, with interbedded white, medium crystalline, conglomeratic Limestone, contains fragments of red, green and gray shale.
4060	4075	Siltstone - dark red to pink, slightly sandy, shaley, hard, micaceous, calcareous, with interbedded streaks of light gray, and pink finely crystalline limestone, also maroon, dark red and green calcareous shale.
	4085	Shale - dark red, calcareous, silty, streaks of light gray and pink, finely crystalline, dolomite, some anhydrite.
		Shale - same as above with interbedded dark red and pink siltstone and fine grained pink and light gray silty sand streaks.

FROM	TO	DESCRIPTION
4090	4105	Shale and Siltstone - dark red, calcareous, some sand streaks, also anhydrite and gypsum.
4105	4120	Shale - dark red, micaceous, non-calcareous, interbedded with dark red calcareous siltstone, slightly sandy, some white to light gray dolomite streaks.
4120	4135	Shale and Siltstone - same as above with pink and light red fine grained, calcareous sandstone, also green and lavender shale.
4135	4150	Shale - dark red, some green, partly calcareous, micaceous also white to light gray fine grained sand streaks near top.
4150	4160	Shale - dark red, some green, same as above, gypsiferous.
4160	4165	Sandstone - gray, fine grained, silty, hard, calcareous, no porosity.
4165	4200	Shale - dark red, some green, silty, micaceous, some red and light gray fine grained, calcareous sand streaks, also gypsum.
4200	4230	Shale and Siltstone - dark red, some green, calcareous, also some interbedded light red, pink and light greenish-gray, fine grained calcareous sand streaks, also interbedded gypsum.
4230	4245	Shale - dark red, maroon and green, micaceous, slightly calcareous, partly silty, some gypsum.
4245	4260	Sandstone - light greenish-gray, fine grained, calcareous, silty, hard, no porosity, also some interbedded light red siltstone.
4260	4270	Shale - dark red and maroon, some green and lavender, micaceous, also dark red interbedded siltstone, some gypsum.
CORED		Core #7 4270 - 4272 Recovered 2'
4270	4272	Shale - dark red to maroon, platey, hard, micaceous, silty, also interbedded dark red micaceous siltstone.
4272	4300	Shale and Siltstone - same as above, some green, slightly sandy, some anhydrite and gypsum streaks.
4300	4335	Shale - maroon and green, silty, slightly calcareous, micaceous, some anhydrite, also dark red and light greenish-gray calcareous siltstone, few streaks of light gray and light pink finely crystalline limestone.
4335	4340	Shale and Siltstone - same as above, interbedded with gray and light pink fine grained silty calcareous sandstone.
4340	4360	Shale - dark red and maroon, some green shale, micaceous, silty, also dark red siltstone, some gypsum, also greenish-gray silty dolomite streaks.
4360	4365	Missing.
4365	4430	Shale - same as above, some light red sandy streaks.

TOP HERMOSA FORMATION

4430	4442	Shale - dark gray, platey, calcareous, micaceous, silty, slightly sandy.
CORED		Core #8 4442 - 4444 Recovered 2'
4442	4444	Shale - dark gray, highly micaceous, silty, slightly sandy and calcareous, same as above.
4444	4460	Shale - same as above, with thin interbedded medium gray shaley sand streaks.
4460	4465	Shale - same with light gray, fine grained, calcareous well sorted quartz grains, sand streaks.
4465	4475	Shale - dark gray, same as above, some green and maroon shale, interbedded with medium gray, fine grained, calcareous, shaley sand streaks.
4475	4490	Shale - dark gray and greenish-gray, calcareous, silty and sandy, very micaceous, interbedded with dark red micaceous shale and red fine grained silty, calcareous sandstone, some gypsum.
4490	4500	Shale - dark red, maroon, brownish-red, green, silty, slightly sandy, partly calcareous, some greenish-gray, micaceous sandy siltstone, also gypsum.
4500	4525	Shale - dark red to maroon, some dark to medium gray, micaceous, slightly calcareous interbedded gray and light red sandy siltstone lenses, some anhydrite seams.
4525	4545	Shale and Siltstone - dark red, maroon, medium gray and some green, micaceous, some light red and light gray sandstone, also anhydrite seams and thin light gray limestone streaks, black tar saturation in some sand lenses.
4545	4555	Shale and Siltstone - dark red, reddish-brown, maroon, green, micaceous, some light gray limestone, also anhydrite and gypsum.
4555	4560	Shale - medium gray, green, some dark red and reddish-brown, micaceous, silty.
4560	4580	Sandstone - light gray, fine grained, silty, well sorted, sub-rounded quartz grains, some black tar, slight porosity, some interbedded dark gray shale.
4580	4590	Shale - dark gray, some green and maroon, micaceous, calcareous, interbedded with lenses of sandstone as above.
4590	4600	Sandstone - light gray, some light pink, fine grained, calcareous, silty, shaley, interbedded with dark gray calcareous shale, also thin beds of light gray finely crystalline dolomite.
4600	4610	Shale - gray, micaceous, silty, calcareous, some light greyish-green siltstone and light gray, fine grained sand lenses, some gypsum and anhydrite seams.
4610	4615	Shale and Siltstone - light to medium dark gray, calcareous, sandy.
4615	4625	Sandstone - white to light gray, very fine to fine grained, silty, calcareous, also light gray shaley siltstone, tarry.
CORED		Core #9 4625 - 4627
4625	4627	Shale - grayish-green, medium gray and green, silty, thinly laminated, platey, slightly dolomitic.

FROM	TO	DESCRIPTION
4627	4630	Shale - gray and grayish-green, same as above, some light gray dolomite streaks and light gray, fine grained, silty, sandstone.
4630	4650	Sandstone - light gray, very fine grained, to fine grained, very silty, dolomitic, with light gray silty dolomite streaks, tarry, some dark gray, silty shale.
4650	4660	Dolomite - white to light gray, finely crystalline, silty to sandy, tarry.
4660	4675	Sandstone - light gray, fine grained, calcareous and dolomitic cement, shaley, silty, tarry, some interbedded light gray and greenish-gray silty, sandy dolomite.
4675	4685	Dolomite - dark gray and grayish-green, finely crystalline, silty, sandy, some light gray siltstone and sandstone, tarry.
4685	4695	Sandstone - light to dark gray, very fine to fine grained, silty, limey with silty limestone streaks, oolitic phases, micaceous, tarry.
4695	4705	Limestone - light to medium gray, finely crystalline, silty, oolitic with black oolites, some tarry limey sand streaks.
4705	4715	Limestone - light to medium gray, finely crystalline, partly oolitic with black oolites, silty, slightly sandy, tarry streaks and tarry globules.
4715	4750	Limestone - same as above with no oolites, silty, partly dolomitic, sandy streaks, tarry, limestone and sandstone streaks.
4750	4770	Dolomite - gray, greenish-gray, finely crystalline, limey, silty, tarry.
4770	4800	Dolomite - gray, greenish-gray, finely crystalline, same as above, streaks of dead oil saturation.
4800	4830	Siltstone - medium to dark gray, very dolomitic, very sandy with sandy streaks, micaceous with some tar saturation.
4830	4840	Siltstone - light to medium to dark gray, micaceous, very dolomitic, with silty dark gray dolomite streaks, some tarry streaks.
4840	4880	Siltstone - dark gray, some brown sandy, micaceous, very dolomitic, streaky tar saturation, some dark gray shale, greenish-gray silty shale, also thin light gray and greenish-gray silty dolomite.

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FROM	TO	DESCRIPTION
4880	4900	Siltstone & Shale - medium to dark gray, micaceous, calcareous to dolomitic, slightly sandy, streaky tar saturation.
4900	4920	Dolomite - light gray, finely crystalline, silty, interbedded with medium gray micaceous dolomitic siltstone.
4920	4976	Siltstone - medium to dark gray, calcareous and dolomitic, micaceous, hard, some thin sandy streaks, partly shaley with streaks of green dolomitic shale.
CORED		Core #10 4976 - 4978 Recovered 1.5'
4976	4978	Shale - dark gray to green, platey, thinly laminated, slightly dolomitic, micaceous, interbedded with very thin streaks of dark gray, very dolomitic sandy siltstone.
4978	4980	Shale - same as above.
4980	4995	Shale - dark gray to green, dolomitic, interbedded with dark gray dolomitic sandy siltstone.
4995	5010	Shale - dark gray, green and brick red, silty, calcareous to dolomitic, some red, fine grained sandstone streaks, also dark gray siltstone, some calcite and anhydrite.
5010	5025	Shale - dark gray and green, some red dolomitic, also dark gray, green and red micaceous, sandy, siltstone, some anhydrite.
5025	5035	Siltstone - dark gray, green and some red, hard, micaceous, calcareous to dolomitic, tarry, some dark gray-green and red shale, some anhydrite.
5035	5050	Shale & Siltstone - same as above, some anhydrite.
5050	5085	Siltstone - dark gray, some red, micaceous, hard, very sandy, calcareous, tarry, streaks of light to dark gray, tarry, fine grained sandstone.
CORED		Core #11 5085 - 5086 Recovered 8/10'
5085	5086	Siltstone - dark gray, calcareous to dolomitic, very sandy with dark gray sand streaks, micaceous, pyrite, streaky tar saturation.
		Core #12 5086 - 5087 Recovered 7'
5086	5087	Siltstone - same as above with thin laminae of dark gray to black shale.
5087	5090	Sandstone - dark gray, fine grained, micaceous, very silty, hard, mainly fair sorted, sub-angular to sub-rounded quartz grains, some larger quartz and blue, gray, black and green chert grains, dolomitic, some porosity, some streaky tar saturation.
5090	5095	Shale & Siltstone - dark gray, micaceous, sandy with streaks of sandstone above, some thin ribs of light gray silty dolomite.
5095	5130	Sandstone - dark gray, fine to medium grained, some larger grains, partly silty, very calcareous, hard, some interbedded blue and blue-white chert grains, also many thin ribs of light gray, cherty dolomite and green dolomitic shale, fair tar saturation.

FROM	TO	DESCRIPTION
5120	5140	Siltstone - dark gray, dolomitic, slightly sandy, cherty, interbedded with considerable light grey cherty dolomite, also grayish-green dolomitic shale, some anhydrite.
5140	5160	Siltstone - same as above with 50% interbedded dolomite, cherty, some green dolomitic shale.
5160	5180	Dolomite - light grey, finely crystalline, cherty, dense, hard, silty to sandy.
5180	5210	Siltstone - light gray, calcareous to dolomitic, slightly sandy, hard, interbedded with 50% very cherty dolomite as above.
5210	5225	Siltstone - dark gray, calcareous to dolomitic, very cherty to very sandy, with medium to dark gray sand streaks, spotted tar saturation.
5225	5235	Siltstone - same as above, very cherty, very sandy, with black tar streaks, considerable interbedded red, dark gray and greyish-green shale.
5235	5245	Sandstone - dark grey, fine grained, silty with sandy siltstone streaks, cherty, mainly well sorted sub-angular to sub-rounded light grey and white quartz grains, calcareous to dolomitic, hard, spotted tar saturation, some green and red shale streaks.
5245	5254	Sandstone - same as above with dark gray and light grey mottled finely crystalline limestone.
		TOP WEBER SANDSTONE
5254	5265	Sandstone - white, light gray to dark grey, fine grained, mainly sub-rounded white and light gray and frosted quartz grains, some larger rounded frosted grains, fair sorting, calcareous siliceous cement, hard, some porous streaks, spotted tar saturation.
5265	5275	Sandstone - white to dark gray, fine to medium grained, sub-rounded, fair sorted quartz grains, hard, some frosted quartz grains, some porosity and tar saturation.
5275	5320	Sandstone - white to dark grey, fine to medium grained, same as above, some pink feldspar grains, few interbedded red, maroon, grey and green silty shale breaks, some red sandy shale, sandstone has some porosity and tar saturation.
5320	5338	Sandstone - white to gray, medium grained, some coarser streaks, mainly white, clear and frosted quartz grains, sub-rounded and fair sorted, tarry residue between grains, fair porosity.
CORED		Core #13 5338 - 5339 Recovered 9/10'
5338	5339	Sandstone - white to gray, fine to medium grained, mainly sub-rounded, white, clear, light gray and frosted quartz grains, many larger rounded frosted grains, very hard, calcareous cement, slightly porous to tight, partly impervious, tar saturation along frectures and bedding.
		Core #14 5339 - 5340 Recovered 6/10'
5339	5340	Sandstone - same as above.
5340	5360	Sandstone - white to gray, medium grained, some dense streaks, same as above in cores.
5360	6390	Sandstone - white to gray, ~~mainly white medium to~~ Gray mainly White medium to coarse grained, mainly wh. clear & frosted sub-rounded

quartz grains, some larger frosted grains, looks like Typical Weber or Tensleep, hard, some porous streaks, some tar between grains.

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FROM	TO	DESCRIPTION
5390	5420	Sandstone - white, medium to coarse grained, some coarse streaks, same as above, fair porosity.
5420	5434	Sandstone - white, coarse grained, same as above, fair porosity.
CORED		Core #15 5434 - 5436 Recov red 2/10'
5434	5436	Sandstone - white, medium grained, mainly sub-rounded to rounded white, clear and frosted quartz grains, poor to fair sorting, many larger rounded frosted grains, slight calcareous cement, hard, partly friable and porous, tar streaks along fractures and bedding planes.
5436	5490	Sandstone - white, medium to coarse grained, same as above.
5490	5510	Sandstone - same, some white, blue and blue-gray chert.
5510	5525	Sandstone - white, medium grained, many larger frosted rounded grains, hard, slightly porous and friable, some red silty shale and white to light brown, finely crystalline dolomite limestone streaks.
5525	5545	Sandstone - white, fine to medium grained, many coarser grains, some quartzitic streaks, hard, tight, some white and gray chert grains.
5545	5560	Sandstone - same, with fragments of black tar.
5560	5625	Sandstone - white, medium grained, same as before with many larger frosted grains.
5625	5655	Sandstone - white, fine to medium grained, some larger frosted grains, calcareous, well sorted, hard, tight, some porous streaks carrying black tar.
5655	5700	Sandstone - white, fine to medium grained, same as above, calcareous, hard, no apparent porosity.
5700	5720	Sandstone - white, medium grained, calcareous, hard, very slightly porous.
TOTAL DEPTH	5722	Bottom hole temperature 139° - well dry in deeper zones, completed as Carbon dioxide well from perforation 3131 - 3155 in the upper portion of Coconino formation.

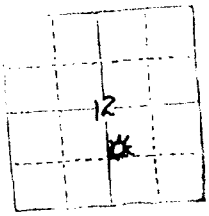
Sample Examination by

Raymond Chorney

Form 9-331a
(March 1912)

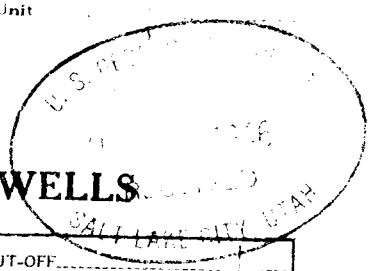
(SUBMIT IN TRIPLICATE)

Land Office Salt Lake
Lease No. 026100-A
Unit



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NOV 15 1946



SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF
NOTICE OF INTENTION TO CHANGE PLANS	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING
NOTICE OF INTENTION TO TEST WATER SHUT-OFF	SUBSEQUENT REPORT OF ALTERING CASING
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL	SUBSEQUENT REPORT OF REDRILLING OR REPAIR X
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY
NOTICE OF INTENTION TO ABANDON WELL	

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Farnham Dome Pet. Co. Well #4
(Mountain Fuel Supply #1)

November 15, 19 46

Well No. 4 is located 1560 ft. from {S} line and 2310 ft. from {W} line of sec. 12

NW SE Sec. 12 (¼ Sec. and Sec. No.) | 15S (Twp.) | 11 E (Range) | S.L.M. (Meridian)

Farnham Anticline (Field) | Carbon (County or Subdivision) | Utah (State or Territory)

The elevation of the derrick floor above sea level is 5850 ft. approx.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

The well was killed with water. The tubing pulled, and the bottom of hole found to be at 3146' consisting of packed sand that the bailer would not pick up. Tools were run in the hole and drilling commenced. The hole was deepened to 3158' at which depth the bailer brought up rubber presumed to be from the float-shoe on top of the cement plug. One sack of Cal-Seal was added by Halliburton Company representative but no trace found of it. Two feet of gravel were placed in hole and another sack of Cal-Seal added which gave a fill-up of seven feet. 8 gals of hydromite were placed in hole and allowed to set. Top of plug measured at 3143'. Tubing was re-run in hole and water blown from well with aid of pressure from #2 well hooked in, about 100 barrels of water were blown out. Well was shut in for 5 hours and blown again. Pressure of well increased and amount of water decreased to about 50 barrels. Well will be blown every five days to rid hole of water if possible.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company CARBON DIOXICE & CHEMICAL COMPANY

Address 415 West 2nd South

Salt Lake City, Utah

By DON BROWN GENERAL MANAGER

Title

Approved NOV 18 1946
C. A. Hauptman
District Engineer

U. S. GOVERNMENT PRINTING OFFICE 16-8437-1

FIELD NOTES & READINGS

Well No.: 4 Location: NW SE 12-15S-11E

Date: June 4, 1953 Elevation: 5812 GL

Bar. Press.: 11.9 Top fm.: 3133 KB T.D.: 3156 KB

Time Hours	Choke in.	Working Pressure psig.	Working Pressure psia.	Ps psia	Choke T, °F.	Remarks
		689	700.9	877.7		Shut-in 32 hours
		Run No. 1				
0	- --	689.0				
0.5	3/16	667.0				
1.0	3/16	660.0				
1.5	3/16	652.0				
2.0	3/16	646.2				
2.5	3/16	642.1				
3.0	3/16	637.5				
3.5	3/16	634.0				
4.0	3/16	631.2			58	
24.0	3/16	606.0	617.9			Extrapolated
		Run No. 2				
0	- - -	631.2				
0.5	1/4	613.5				
1.0	1/4	610.5				
1.5	1/4	603.5				
2.0	1/4	595.7				
2.5	1/4	591.5				
3.0	1/4	587.7				
3.5	1/4	581.0				
4.0	1/4	577.0			59	
24.0	1/4	556.0	567.9			Extrapolated
		Run No. 3				
0	- - -	577.0				
0.5	5/16	552.8				
1.0	5/16	539.3				
1.5	5/16	530.4				
2.0	5/16	522.0				
2.5	5/16	515.0				
3.0	5/16	513.5				
3.5	5/16	507.5				
4.0	5/16	502.0			56	
24.0	5/16	479.0	490.9			Extrapolated

GAS WELL BACK PRESSURE TEST

Field **Farnham Dome** County **Carbon** State **Utah**

Well Owner **C.D. & C. Co.** Lease Well No. **4**

Location **NW SE 12-15S-11E** Date of Test **June 4, 1953**

Elevation **5812 GL** T.D. **3156 KB** Top **3133 KB**

Date Completed **- - - -** Initial Production **Est. 3,250 MCF**

Well Producing **CO_2 gas** Casing **7" OD @ 3156**

Average Gravity of Gas **1.52** Bottom-hole Temperature **123°F.**

FIELD DATA

Run No.	Time of Run	Choke	Temperature	Stabilized Pressure psia
Shut in	**32 hours**			
1		- - -	**70°F.**	**700.9**
2	**4 hrs.**	**3/16**	**58**	**617.9**
3	**4 hrs.**	**1/4**	**59**	**567.9**
	4 hrs.	**5/16**	**56**	**490.9**

VOLUME CALCULATIONS

Run No.	Stabilized Pressure psia	Coefficient	Gravity Factor	Temperature Factor	Compressibility Factor	Volume Mcf per day
1	**617.9**	**0.802**	**0.6285**	**1.0019**	**1.149**	**358.5**
2	**567.9**	**1.470**	**0.6285**	**1.0010**	**1.088**	**571.4**
3	**490.9**	**2.340**	**0.6285**	**1.0039**	**1.045**	**757.4**

PRESSURE CALCULATIONS

P_s = **877.7** P_s^2 = **770.4**

P_{f_1} = **777.9** $P_{f_1}^2$ = **605.1** $P_s^2 - P_{f_1}^2$ = **165.3**

P_{f_2} = **708.3** $P_{f_2}^2$ = **501.7** $P_s^2 - P_{f_2}^2$ = **268.7**

P_{f_3} = **609.5** $P_{f_3}^2$ = **371.5** $P_s^2 - P_{f_3}^2$ = **398.9**

Absolute potential, **1,340** Mcf per day

Shut-in well head pressure, **689 psig**

Field Farnham Anticline
Farm Farnham Dome Pet. Co.
Company Mountain Fuel Supply Co.

Sec. 12 T. 15S R. 11E
Well No. 1

FORMATION RECORD	From	To
Sandstone, white to gray, fine-grained, calcareous, with interbedded gray shale and dolomite, white to gray, sugary.	4605	4695
Limestone, white to gray, oolitic, very sandy.	4695	4755
Dolomite, white and light grayish-green, finely-crystalline, dense, silty.	4755	4800
Siltstone, gray, very dolomitic, sandy, with interbedded green to red shale.	4800	5090
Siltstone and dolomite, very cherty, calcareous, very hard.	5090	5265
Sandstone, white, fine- to medium-grained, calcareous.	5265	5722

FORMATION RECORD	From	To

Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah 84111

March 31, 1970

Mariani Air Products Co.
~~614 West~~ 6th South
P. O. Box 16007
Salt Lake City, Utah 84116

Gentlemen:

As discussed with Mr. George Mohr, a visit to the Farnham Dome field on March 25, 1970, revealed a new problem which needs immediate attention.

Well No. 4, a shut-in gas well in the NW¼SE¼ sec. 12, T. 15 S., R. 11 E., on lease Salt Lake 026100(a) has literally "cratered"! At present there is only a small volume of gas with strong sulfur odor coming from the cellar area. However, the mud and crater appearance around the well head and the vent holes around the well indicate some sort of pressure build-up and blowout from the well.

It is requested that you investigate this situation and notify me what your plans are as soon as possible. If there are no further plans for producing this well and the other two wells on this lease, it may be a good time to permanently abandon all three.

Very truly yours,

(ORIG. SGD.) R. A. SMITH

Rodney A. Smith
District Engineer

cc: Farnham Dome Petr. Co.
P. O. Box 8
Lathrop, California

Utah Division of Oil & Gas Conservation

Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah, 84111

April 8, 1970

George N. Mohr

Mariani Air Products Co. 359-3735
614 West 6th South
P. O. Box 16007
Salt Lake City, Utah 84116

Gentlemen:

Attached is a diagrammatic sketch of the Farnham Dome Pet. Co. well No. 4, NW¼SE¼ sec. 12, T. 15 S., R. 11 E., on lease Salt Lake 026100(a).

I don't know the exact nature of the problem which caused the blowout around the above well. The holes out away from the wellhead would indicate gas coming around the outside of the 13" surface pipe. The problem may be more evident with further examination and venting or removal of wellhead equipment.

One acceptable plugging procedure would be to kill the well, place a 300-500' cement plug across the perforations, determine the amount of free 7" pipe and cut and pull that which can be recovered, place a 100-200' cement plug across the stub of the 7" pipe, and place a 100-200' plug across the base of the 13" pipe. Heavy drilling mud or viscous, high gel fluid must be placed between all plugs with a cement plug at the top and a regulation marker.

There are variations in plugging programs which may be considered, and the object of the plugging program is to permanently plug off or isolate all porous zones, to confine all fluids to the zone of natural occurrence and to eliminate any possibility of fluid migration from one zone to another or to the surface. In this well, we must consider the water sand at around 1332-92' as well as the gas zones.

As requested, I am furnishing the names and addresses, etc. for two companies and two consulting engineers in this area who do this sort of work:

Utah-Colorado Casing Pullers & Well Plugging, Vernal, Utah
Phones: 789-1765, 789-0009, 789-3660

Pat & Dick's Casing Pullers, 1606 Spruce St., Grand Junction, Colorado (80501) Phone: 242-3593

James F. Tadlock, Petroleum Engineer, P.O. Box 418, Vernal, Utah (84078) Phone: 789-3573

L. R. Robinson, Natural Gas Engineer, 558 N. 23rd Street,
Grand Junction, Colorado Phone: 242-7006

Any plugging program or other work must have prior approval from this office. Please keep us advised as to your plans and progress on this matter.

Sincerely yours,

(ORIG. SGD.) R. A. SMITH

Rodney A. Smith,
District Engineer

Attachment

cc: Casper
Utah Div. O&G Conservation

Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah, 84111

April 15, 1970

Mr. George H. Mohr
Mariani Air Products Co.
P.O. Box 16007
Salt Lake City, Utah 84116

Dear Mr. Mohr:

Attached is a diagrammatic sketch of well No. 2, SE¼SW¼ sec. 12, T. 15 S., R. 11 E., lease Salt Lake 026100(a), as you requested. I am also attaching another copy of the sketch of well No. 4, as I find the formation tops originally reported for No. 4 and shown on the sketch furnished on April 8 have since been revised. The confusion was apparently due to faulting and erroneous interpretation and the CO_2 production is from the Navajo formation, not the Coconino. Also attached are copies of various notices, etc. on well No. 2 for your files.

A suggested plugging program for well No. 2 would be to kill the well, remove the tubing, place a 300' cement plug at the total depth extending up into the 8 5/8" casing; cut and pull all 8 5/8" casing possible and place a 100 to 200' cement plug on the stub of the 8 5/8" casing. Depending on the depth of placement of the cement in 10 - 12 1/2" annulus in 1957, it may be possible to pull some of the 10 or 12 1/2" pipe and completely cement some intervals of the hole as it is felt that the surface leakage near this well probably is due to leakage through or around the upper casing strings. In any event, there should be one or two additional plugs in the upper portion of the hole and in any open annulus at the top. Heavy drilling mud or highly viscous fluid must be placed between all plugs. Also a standard dry hole marker must be erected.

Perhaps Mr. Hartley can advise us of the details of the 1957 job and the final plugging program may depend on this information and the conditions encountered upon reentering this well.

I am pleased that you are considering the abandonment of this well at this time. If you need additional information or plan to plug well No. 3 also, please contact me.

Sincerely yours,

ORIG. SGD.] R. A. SMITH

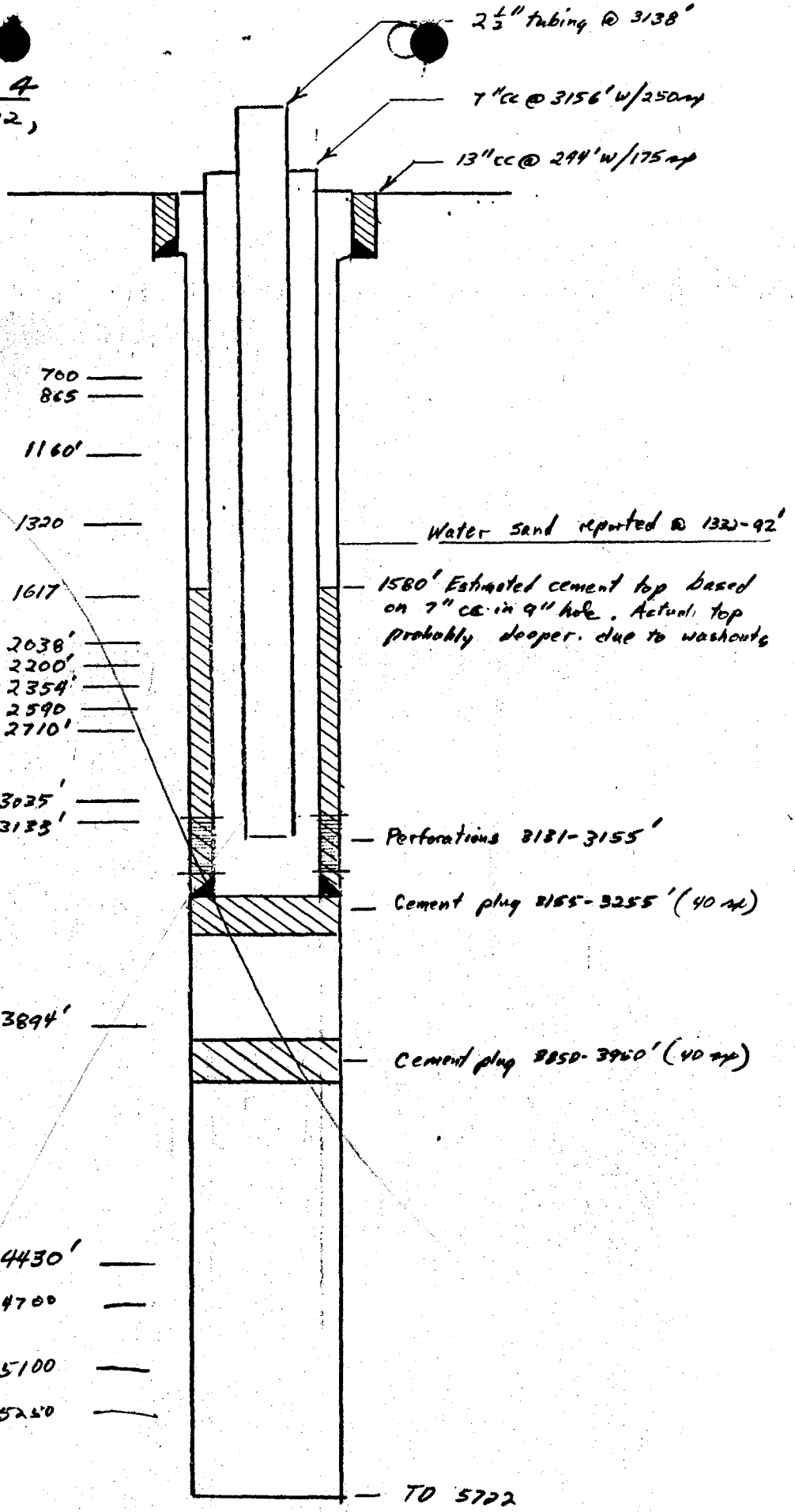
Rodney A. Smith,
District Engineer

Attachments
cc: State O&G Con. Div.

Diagrammatic sketch of

FARNHAM DOME PET CO No 4

1540' FSL ; 2310' FEL Sec. 12,
T. 15 S., R. 11 E.
Carbon Cnty., Utah
SL-026100A



Approx Tops

USGS	Co.	
	Salt Wash	700
	Summerville	865
Curtis	Curtis	1160'
Entrada	Entrada	1320
	Carmel	1617
Curtis	Navajo	2038'
	Kayenta	2200'
	Wingate	2354'
	Chinle	2590
Carmel	Moenkopi	2710'
	Sinbad	3025'
Navajo	Coconino	3133'
Chinle	Rico	3894'
	Pennsylvanian	4430'
Sinbad		4700
Kaibab		5100
Coconino		5250

Land Office
[redacted]st Office Box No. 11505
[redacted]lt Lake City, Utah 84111

May 12, 1970

DECISION

Principal:		Surety:
Carbonic Engineering Co.	:	Fireman's Fund Ins. Co.
P.O. Box 8	:	c/o Sinclair-Dwyer & Co.
Lathrop, Calif. 95330	:	322 Pine St.
		San Francisco, Calif. 94104

Bond Accepted

The $5,000 bond, No. SL 6219215, filed May 11, 1970, with Carbonic Engineering Company as principal, and Fireman's Fund Insurance Company as surety, has been examined, found to be satisfactory and is accepted as of date of filing.

The principal and surety have agreed to accept liability for the shut-in CO_2 wells located on the leasehold.

/s/ F. S. Kirk

F. S. Kirk
Chief, Adjudication Branch

cc:
Surety
USGS Casper (3)

L&M:THolmberg:mg

July 10, 1970

Vernon Romney, Attorney General
State of Utah
236 - State Capitol Building
Salt Lake City, Utah 84114

Re: Farnham Dome Unit #2 & #4 wells,
Sec. 12, T. 15 S, R. 11 E,
Carbon County, Utah

Dear Sir:

Since 1962, this Division and the U.S. Geological Survey have been trying to coerce the owner of the oil and gas lease covering Section 12, Township 15 South, Range 11 East, to plug-off a CO^2 leak located approximately 50 feet from the Unit #2 well head. The original lessee, Carbon Dioxide and Chemical Company, insisted that said leak was actually a natural geyser and had no connection with the well itself. Unfortunately, at that time, it was impossible to disprove this theory. Very recently, both of the above referred to wells have blown-out and caused extensive cratering around the well heads. This makes for a very hazardous situation should any individual or animal venture to close to the holes.

In the opinion of this office and the U.S. Geological Survey, these wells must be plugged as soon as possible. However, in the interim it is recommended that a fence be erected around the periphery of both wells to prevent any possible injury or death.

Prior to these wells cratering, the Mariani Air Products Company purchased said property from the Carbon Dioxide and Chemical Company. Mr. George H. Mohr, a representative of the present owner, feels that his organization is not liable for the existing conditions. This being a question only the courts can answer, you are hereby requested to take the necessary legal action against the Mariani Air Products Company and Carbon Dioxide and Chemical Company to have said wells plugged and abandoned. (It might be noted that there is a federal ruling that the present owner of an oil and gas lease is not responsible where he has never utilized the wells drilled prior to the date he acquired the lease.)

You are urged to proceed with the utmost expediency due to the dangerous conditions presently existing, and the extensive waste that is taking place.

Very truly yours,

DIVISION OF OIL & GAS CONSERVATION

CLEON B. FEIGHT
DIRECTOR

CBF:sd

cc: U.S. Geological Survey, 8416 Federal Building, Salt Lake City, Utah

U.S. Geological Survey, 305 Federal Building, Casper, Wyoming

Mariani Air Products Company, 614 West 6th South, Salt Lake City, Utah

Carbon Dioxide and Chemical Company, 415 West 2nd South, Salt Lake City

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS CONSERVATION
1588 WEST NORTH TEMPLE
SALT LAKE CITY, UTAH 84116
328-5771

July 14, 1970

Vernon Romney, Attorney General
State of Utah
236 - State Capitol Bldg.
Salt Lake City, Utah 84114

Dear Sir:

Attached is a copy of a letter this Division forwarded to you on July 10, 1970. Please note the following change on page 2:

Carbon Dioxice and Chemical Company
Attn: David I. Wendel, Attorney
1020 Central Building
Oakland, California 94612

Thank you,

DIVISION OF OIL & GAS CONSERVATION

CLEON B. FEIGHT
DIRECTOR

CBF:sd
cc: U.S. Geological Survey, 8416 Federal Building, Salt Lake City, Utah
U.S. Geological Survey, 305 Federal Building, ~~Denver, Colorado~~ Casper, Wyoming

Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah 84111

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

July 20, 1970

Carbonic Engineering Company
P. O. Box 8
Lathrop, California 95330

Gentlemen:

Please refer to records for your Federal lease Salt Lake 026100(a), covering 559.60 acres, more or less, in the S½ section 12, and lots 1 and 2, NE¼ section 13, T. 15 S., R. 11 E., Farnham Dome field, Carbon County, Utah.

Following a recent discussion with Mr. George Mohr, Mariani Air Products Co., at the office of the Utah Division of Oil and Gas Conservation concerning the status of three shut-in CO_2 gas wells on lease SL-026100(a), we have reviewed our records to determine the following:

By BLM assignment effective June 1, 1970, Carbonic Engineering Company became lessee of record (100%) for lease SL-026100(a), formerly held by Farnham Dome Petroleum Company as lessee of record (100%).

By BLM decision dated 5-12-70, the $5,000 bond No. SL6219215 filed 5-11-70 for lease SL-026100(a) with Carbonic Engineering Company as principal and Fireman's Fund Insurance Company as surety, and with the principal and surety agreed to accept liability for the shut-in CO_2 wells located on the leasehold, was accepted as of the date of filing.

By BLM decision dated 6-16-70, the period of liability under the $5,000 bond No. L-613-0263 filed 4-12-65 for lease SL-026100(a) with Farnham Dome Petroleum Company and Carbon Dioxide and Chemical Company as principals and Fireman's Fund Insurance Company as surety, was terminated effective 6-2-70.

By BLM decision dated 7-14-69 for "Assignment of Operating Rights Approved", this decision says that on 6-1-67 an assignment of Operating Rights was entered into between Carbon Dioxide and Chemical Company and Mariani Air Products Company covering all of the land in the following oil and gas leases:

SL-026100(a)
SL-026100(b)

By Operating Agreement dated 12-18-29, Carbon Dioxide and Chemical Company acquired operating rights on leases SL-026100(a) and (b).

Our records show that Rodney A. Smith, former district engineer in this office, and George Mohr of Mariani Air Products Company, holder of operating rights on SL-026100(a), have negotiated and corresponded about plugging requirements for the following two shut-in CO_2 wells on this lease:

Well #2, SE¼SW¼ sec. 12, T. 15 S., R. 11 E.
Well #4, NW¼SE¼ sec. 12, T. 15 S., R. 11 E.

Enclosed are photocopies of correspondence from our files concerning this matter as follows:

1. Letter to Mariani Air Products Co. dated 3-31-70.
2. Letter to Mariani Air Products Co. dated 4-8-70.
3. Letter to Mariani Air Products Co. dated 4-15-70.
4. Letter from Cleon B. Feight, Director, Division of Oil and Gas Conservation, Utah, to the Attorney General, State of Utah, dated 7-10-70.

Of immediate importance is the requirement of the second paragraph of Mr. Feight's letter to the Attorney General of Utah, whereby it is recommended that a fence be erected around the periphery of cratered wells No. 2 and No. 4 to aid in the prevention of possible injury or death.

Mr. Mohr of Mariani Air Products Co. has been negotiating with Johnny Moore, local drilling contractor, to contract for the plugging of wells No. 2 and No. 4. However, to our knowledge Mariani has never performed any operations on this lease since acquiring operating rights.

The Survey, therefore, looks to the lessee of record who is also the principal on the lease bond conditioned for the plugging of wells No. 2 and No. 4 on this lease, for the performance of the necessary plugging operations.

Please notify this office immediately of your plans to provide for the plugging of wells No. 2 and No. 4, and to construct the recommended fence around these two wells on this lease.

If this office does not receive your reply, we will have to call on the bonding company to perform the necessary well plugging operations.

This office will cooperate with Mr. Paul Burchell of the Utah Division of Oil and Gas Conservation regarding details of the necessary plugging procedures.

Sincerely yours,

John V. Finnegan
Acting District Engineer

Enclosures

Copies to:

Mariani Air Products Co.
614 West 6th South
P. O. Box 16007
Salt Lake City, Utah 84116

Fireman's Fund Ins. Co.
c/o Sinclair-Dwyer & Co.
322 Pine Street
San Francisco, California 94104

Utah Division of Oil and Gas Conservation
1588 West North Temple
Salt Lake City, Utah 84116

ORR, HEURING & WENDEL
ATTORNEYS AT LAW
1020 CENTRAL BUILDING
OAKLAND, CALIFORNIA 94612
AREA CODE 415 834-6600

J. CLAYTON ORR
DAVID I. WENDEL
LAWRENCE S. SIMON
VICTOR D. ROSEN
DONN L. BLACK
WALTER M. SCHEY
NEIL R. ANDERSON
STEVEN KAY
MICHAEL A. DEAN

MARION W. HEURING
(1907 - 1961)

July 28, 1970

John V. Finnigan
Acting District Engineer
United States Department of Interior
Geological Survey
8416 Federal Building
Salt Lake City, Utah 84111

Re: Carbonic Engineering Company
Salt Lake Lease 026100(a)

Dear Mr. Finnigan:

As I indicated to you in my letter of July 24, 1970, this office is general counsel for Carbonic Engineering Company, of Lathrop, California.

We are presently looking into this matter to determine our client's liability with respect to the subject wells.

We notice that Mr. Cleon B. Feight in his letter of July 10, 1970, addressed to the Utah Attorney General, refers to a federal ruling that "the present owner of an oil and gas lease is not responsible where he has never utilized the wells drilled prior to the date he acquired the lease".

Would you please be kind enough to refer us to the specific Federal Regulation Mr. Feight is referring to? We are unable to locate such a regulation in Title 43 of the Code of Federal Regulations.

Please contact the undersigned as soon as possible so that we may settle this matter in the near future.

Very truly yours,

ORR, HEURING & WENDEL

Michael A. Dean

MAD:mvj
cc: Mr. Henri deLotty
Mariani Air Products Co.
Firemen's Fund Insurance Co.
Utah Division of Oil and Gas Conservation
Vernon Romney, Attorney General

Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah 84111

July 31, 1970

Mr. Michael A. Dean
Orr, Heuring & Wendel
Attorneys at Law
1020 Central Building
Oakland, California 94612

Dear Mr. Dean:

By letter of July 28, 1970, you asked of this office the specific Federal Regulation in 43 CFR that referred to the Federal ruling that "the present owner of an oil and gas lease is not responsible where he has never utilized the wells drilled prior to the date he acquired the lease."

We are not aware of any provision of 43 CFR which contains the statement referred to in your letter. We call your attention to 43 CFR 3128.2(e) which provides that after approval of an assignment the assignee or sub-lessee and his surety are responsible for all lease obligations.

When Carbonic Engineering was assigned the Lease Record Title of this lease, the assignment was approved by the Land Office on the condition that a bond be furnished by Carbonic Engineering, conditioned to accept all liability for the shut-in CO_2 wells located on the leasehold. Since the principal and surety agreed to accept liability for these wells, the assignment was approved and the bond of the former lessees, Farnham Dome Petroleum Co. and Carbon Dioxice & Chemical Co., was allowed to terminate.

By decision of July 14, 1969, Mariani Air Products Co. was granted an assignment of Operating Rights for lease SL-026100(a) and SL-026100(b). Title 43 Code of Federal Regulations 3126.1(c) states "An operator or, if there is more than one operator covering different portions of the lease, each operator may furnish a $10,000 general lease bond in his own name as principal on the bond in lieu of the lessee."

Since Carbonic Engineering is the lessee of record and has conditioned its bond to accept liability for the wells on the lease and Mariani Air Products has not supplied a bond nor utilized the wells drilled, Carbonic Engineering is responsible for the wells.

Sincerely yours,

Org. /s/Bernard Moroz

Bernard Moroz

Acting District Engineer

cc: Utah Division of Oil & Gas Conservation

ORR, HEURING & WENDEL
ATTORNEYS AT LAW
1020 CENTRAL BUILDING
OAKLAND, CALIFORNIA 94612
AREA CODE 415 834-6600

J. CLAYTON ORR
DAVID I. WENDEL
LAWRENCE S. SIMON
VICTOR D. ROSEN
DONN L. BLACK
WALTER M. SCHEY
NEIL R. ANDERSON
STEVEN KAY
MICHAEL A. DEAN

MARION W. HEURING
(1907 - 1961)

August 4, 1970

Mariani Air Products Co.
P. O. Box 1607
Salt Lake City, Utah

Re: Federal Lease SL026100(a)

Gentlemen:

This firm is general counsel for Carbonic Engineering Company of Lathrop, California, successor in interest to Carbonic Dioxice & Co., with respect to the above lease.

We are writing this letter in connection with a letter dated July 20, 1970, our client received from the Bureau of Land Management in regards to work required to wells number 2 and number 4 on the land covered by the above lease.

It is the opinion of this firm that your company is responsible to do the corrective work to the wells. In support of our position we refer you to paragraph 5(e) page 4 of the Option Agreement dated March 8, 1967, between Carbon Dioxice & Chemical Company, as seller, and Ernest F. Mariani and Ernest D. Mariani, as buyer, which provides:

> "CO-2 rights covered by this option are subject to all of the terms and conditions of the leases and Buyer agrees to comply with the requirements thereof and regulatory provisions of applicable law, regulation or the leases, and to indemnify Seller against claims, expenses, losses or liability to the extent of the CO-2 rights by reason of Buyer's failure so to comply with such leases and laws."

Because of the urgency involved in this matter, we must hear from you regarding your position no later than noon, Monday, August 10, 1970.

Be advised that if you refuse to do the corrective work, our client will have no alternative but to do the work for your behalf and then seek reimbursement from you for all costs and expenses incurred therewith. In that connection, we call to your attention paragraph 14 of the Option Agreement which provides:

> "The parties hereby agree that should it become necessary for either party to bring an action against the other to enforce any of the terms hereof, the prevailing party shall be entitled to payment from the other for its reasonable attorney's fees and expenses as the court may deem reasonable, and the right to such attorney's fees and expenses shall be deemed to have accrued on the commencement of such action and shall be enforceable whether or not such action is prosecuted to judgment and if prosecuted to judgment, such fees shall be included in said judgment."

Very truly yours,

ORR, HEURING & WENDEL

Michael A. Dean

MAD:mvj

cc: Mr. Henri deLotty, Sr.
Bernard Moroz
Firemen's Fund Insurance Company
Utah Division of Oil and Gas Conservation
Vernon Romney, Attorney General

ORR, HEURING & WENDEL
ATTORNEYS AT LAW
1020 CENTRAL BUILDING
OAKLAND, CALIFORNIA 94612
AREA CODE 415 834-8600

J. Clayton Orr
David L. Wendel
Lawrence S. Simon
Victor D. Rosen
Donn L. Beach
Walter M. Shirley
Neil R. Anderson
Steven Kay
Michael A. Dean

Marion W. Heuring
(1907-1961)

August 14, 1970

Bernard Moroz, Acting District Engineer
United States Department of Interior
Geological Survey
8416 Federal Building
Salt Lake City, Utah 84111

Mariani Air Products Co.
614 West Sixth South
P. O. Box 16007
Salt Lake City, Utah 84116

Fireman's Fund Insurance Co.
c/o Sinclair-Dwyer & Co.
322 Pine Street
San Francisco, California 94104

Utah Division of Oil and Gas Conservation
1588 West North Temple
Salt Lake City, Utah 84116

Vernon Romney, Attorney General
State of Utah
236 State Capital Building
Salt Lake City, Utah 84114

Re: Federal Lease SL026100(a)

Gentlemen:

We are writing this letter on behalf of Carbonic Engineering Company of Lathrop, California, in connection with the two leaking wells covered by the subject Lease.

Be advised that our client is going to take whatever action is necessary in order to complete the required corrective work to the two wells. In that connection, our client will be communicating directly with all interested persons.

Very truly yours,

ORR, HEURING & WENDEL

Michael A. Dean

Michael A. Dean

MAD:mvj
cc: Henri deLotty

ORR, HEURING & WENDEL
ATTORNEYS AT LAW
1020 CENTRAL BUILDING
OAKLAND, CALIFORNIA 94612
AREA CODE 415 834-6600

J. CLAYTON ORR
DAVID I. WENDEL
LAWRENCE S. SIMON
VICTOR D. ROSEN
DONN L. BLACK
WALTER M. SCHLY
NEIL R. ANDERSON
STEVEN KAY
MICHAEL A. DEAN

September 1, 1970

Rudolph Baer, District Engineer
United States Department of Interior
Geological Survey
8416 Federal Building
Salt Lake City, Utah 84111

Paul Burshell
Utah Division of Oil and Gas Conservation
1588 West North Temple
Salt Lake City, Utah 84116

Re: Federal Lease SL 026100(a)

Gentlemen:

As you know, this office is general counsel for Carbonic Engineering Co., Lathrop, California. This letter is written to outline the agreement reached between our client and yourselves with respect to the corrective work to wells number two and four covered by subject lease.

We understand the agreement to be as follows:

1. Upon receipt of an executed copy of this letter from each of you, our client through Mr. Johnny Moore of Cisco, Utah, will forthwith commence plugging one of the two wells as designated by you.

2. Upon completion of the plugging of the first well as provided above, you agree to immediately re-examine the situation to determine whether well number one is in fact causing the existing problems at wells number two and four.

3. In the event, after your re-examination of the situation, you determine the cause of the problem to be from well number one, you will forthwith notify our client of said determination, in which event our client shall not be obligated to do any further work on the second well and shall be fully and finally released and discharged of its liabilities and obligations arising out of subject lease.

4. In the event, however, after your re-examination of the situation, you determine the cause of the problem not to be from well number one, you will forthwith notify our client of said determination, in which event our client, through Mr. Moore, will forthwith commence plugging the second well. Upon completion of the plugging of the second well, our client shall be fully and finally released and discharged of its liabilities and obligations arising out of subject lease.

5. The above plugging work shall be carried out pursuant to procedures you shall outline, and shall be subject to your supervision.

6. The releases of liability provided in paragraphs 3 and 4 above, shall fully and finally settle all demands, charges, claims, accounts or causes of action of whatsoever nature and character that arose out of subject lease and/or all transactions related thereto.

Please indicate your acceptance of the foregoing by signing the enclosed copy of this letter where indicated below for return to the undersigned in the enclosed self-addressed envelope.

Please do not hesitate in contacting the undersigned if you should have any questions and/or comments in connection with this letter.

Very truly yours,

ORR, ~~HEURING & WENDEL~~

Michael A. Dean

MAD:mvj
Enclosure

cc: Mr. Edward Schneider
Nathan J. Fullmer, Esquire
Firemen's Fund Insurance Co.
Vernon Romney, Attorney General

AGREED:

Utah Division of Oil and Gas Conservation

By _____

Dated September , 1970

Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah 84111

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

September 16, 1970

Mr. Michael A. Dean
Orr, Heuring & Wendel
1020 Central Building
Oakland, California 94612

Re: Federal oil and gas lease SL-026100(a)
Well No. 2, SE¼NW¼ sec. 12, T15S, R11E
Well No. 4, NW¼SE¼ sec. 12, T15S, R11E
Carbonic Engineering Company

Dear Mr. Dean:

This is to acknowledge receipt of your letter of September 1, 1970, on behalf of your client, Carbonic Engineering Company of Lathrop, California, describing the procedure to be followed in plugging the referenced wells in an attempt to correct the dangerous condition created by gas leaks near the wells.

The procedure you have described is satisfactory to this office insofar as the sequence of work is concerned. I understand that the contractor, Mr. Johnny Moore of Cisco, Utah, is fully advised regarding the plugging requirements previously established by Mr. Rodney A. Smith. If Mr. Moore does not have the plugging programs for both wells, I will be available at any time to provide him with them. Mr. Moore must contact this office prior to commencing work on the wells.

Those parts of your letter stating in numbered paragraph 3 ". . . in which event our client shall not be obligated to do any further work on the second well and shall be fully and finally released and discharged of its liabilities and obligations arising out of subject lease." and in numbered paragraph 4 "Upon completion of the plugging of the second well, our client shall be fully and finally released and discharged of its liabilities and obligations arising out of the subject lease." and all of numbered paragraph 6 are not acceptable to this office. Carbonic Engineering Company has accepted liability not only for the two referenced wells but also for well No. 3, NW¼SE¼ sec. 12, T. 15 S., R. 11 E. Therefore, until such time as all three of the wells have been approved as plugged and abandoned by the Geological Survey, this office cannot recommend release of liability nor even recommend that the period of liability of Carbonic Engineering Company's bond be terminated. Further, the Geological Survey does not have authority

to release liability for operations conducted on Federal land under Federal oil and gas leases. Authority to terminate the period of liability of the lessee's bond rests with the Bureau of Land Management but even if the bond is released, liability for the wells will remain with Carbonic Engineering Company.

Please refer to 30 CFR 221.18 (copy enclosed) which partially provides:

> "The lessee . . . shall take all reasonable precautions to prevent . . . injury to life or property . . . ."

Some of the analyses in our files show the presence of Hydrogen Sulfide (H_2S) in the gas produced from the wells. Hydrogen Sulfide is an extremely toxic gas. In addition the physical conditions created by the leaks near the wells constitute a public health hazard.

Your letter dated August 14, 1970, advised "Be advised that our client is going to take whatever action is necessary in order to complete the required corrective work to the two wells." Therefore, any delay past October 1, 1970, in commencing corrective work will be regarded as wilful violation of 30 CFR 221.18 and this office will recommend action be instituted under 30 CFR 221.53, Shutting down Operations; Lease Cancelations, and 30 CFR 221.54, Liquidated Damages, with specific reference to subparagraphs (a) and (h). We also hope you are aware that if a determination is made by this office that Carbonic Engineering Company's actions constitute wilful violation of the regulations, and this determination is deemed valid by the Justice Department, criminal prosecution in the courts may be in order.

Sincerely,

Gerald R. Daniels

Gerald R. Daniels
District Engineer

Enclosure

cc: Carbonic Engineering Co.
Mariani Air Products Co.
Fireman's Fund Insurance Co.
✓Utah Division of Oil and Gas Conservation
Vernon Romney, Attorney General
Attn. Sheridan McGarry

Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah 84111

September 22, 1970

Mr. John Moore
Cisco, Utah

Re: Federal oil and gas lease SL-026100(a)
Well No. 2, SE¼NW¼ sec. 12, T15S, R11E
Well No. 4, NW¼SE¼ sec. 12, T15S, R11E
Carbonic Engineering Company

Dear Mr. Moore:

In accordance with your telephone inquiry of September 21, 1970, the following plugging programs are outlined for the referenced wells:

Well No. 2

(1) Kill well with mud of sufficient density to completely stop all gas flow.

(2) Place 300' cement plug from total depth upward extending up into the 8 5/8" casing.

(3) Cut and pull all 8 5/8" casing possible.

(4) Place 200' cement plug at stub of 8 5/8" casing.

(5) If 8 5/8" casing is pulled from below 1900', a 100' plug should be placed from 1925' to 1825', across shoe of 10" casing.

(6) Test 10" casing to see if any of it can be recovered. If no 10" can be pulled, pressure test 10" casing to see if it is leaking. If 10" casing is leaking, locate leaks and squeeze 50 sacks of cement into the leaks. After cement has set, repeat pressure test and resqueeze if necessary.

(7) Place 50' plug in 10" at the surface and place as much cement as possible in 10"-12½" annulus.

(8) If 10" casing can be pulled, place 100' plug at 10" stub and perform pressure testing and squeeze operation outlined in step (6) on 12½" casing.

(9) Place 50' plug in 12½" at the surface.

(10) Set standard marker.

Well No. 4

(1) Kill well with mud of sufficient density to completely stop all gas flow.

(2) Place 300' cement plug from total depth upward.

(3) Cut and pull all 7" casing possible.

(4) Place 200' cement plug at casing stub.

(5) Place a 100' cement plug from 255' to 155' across shoe of 13" casing.

(6) Place 5-sack plug at top of 13".

(7) Set standard marker.

The mud specified in steps (1) for both wells should be left between plugs. If it is not possible to recover any 8 5/8" casing from well No. 2 or 7" casing from well No. 4, the pressure testing and squeezing procedure outlined in step (6) for well No. 2 should be followed. The bottom plugs placed in the wells should be sufficient to stop any flow of gas from the wells and therefore are the most important to be properly placed. The remainders of the plugging programs are flexible and will depend on conditions encountered when attempting to cut and pull the innermost casing strings. I will be available at any time to adjust the programs as conditions warrant.

I wish to emphasize that there may be Hydrogen Sulfide (H_2S) gas present. You should have protective equipment available as well as being familiar with physiological warning signals of Hydrogen Sulfide poisoning to be familiar with treatment of such poisoning. I understand the State of Utah Chief Petroleum Engineer has provided you with information in this regard.

Please advise this office when you are ready to start work.

Sincerely,

Gerald R. Daniels

Gerald R. Daniels
District Engineer

cc: Carbonic Engineering Co.
Utah Division of Oil and Gas Conservation

Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah, 84111

October 19, 1970

Memorandum

To: File

From: G. R. Daniels

Subject: SL 026100(a) Farnham Dome

Mr. Ed Schneider, Carbonic Engineering Co., Lathrop, California, telephoned 10-19-70 at 11:00 a.m. re plugging the two leaking carbon dioxide wells on the subject lease.

He has been trying to get Johnny Moore to get to work on the wells. Mr. Moore is busy on another well but will start this job as soon as he is able. Mr. Shcneider's attitude was very cooperative in agreeing that Carbonic would see that the wells were properly plugged and that Carbonic would like the work done to our satisfaction as quickly as possible. Mr. Moore will be in to consult regarding plugging programs.

Carbonic Engineering telephone number is 209-858-2444.

Gerald R. Daniels

cc: Casper
Utah Division of Oil & Gas Conservation

[illegible]-COLORADO CASING PULLERS
475 East 1st South
Vernal, Utah 84078

Phone 789-1765

PI

Mr. Ed Schneider
Carbonic Engineering Company
P.O. Box 8
Lathrop, California 95330

December 12, 1970

Dear Mr. Schneider,

I have been contacted by Mr. Gerald R. Daniels, U.S.G.S., to check on wells at Wellington, Utah, Carbon County, Farnham Dome No. 2 and No. 4, and to contact you. I have checked these wells and am sending you some information and estimates on them.

Estimated cost of gel and bar

Well No. 2

185 bbls. to fill 8 5/8" casing
38 bbls. to fill between 8 5/8 and 10" casing
75 bbls. to fill between 10 and 12 3/4" casing
50 bbls. to fill cavities and displacement

348 bbls. estimated mud needed
Suggest 11# mud

$ 1,305.00 Bar
60.00 Freight from Price
124.70 for gel and bar

$ 1,489.70

Estimated rig time - 53 hrs. @ $30.00 per hour - - - - $ 1,590.00

Estimated cost of gel and bar

Well No. 4

185 bbls. to fill 7" casing
105 bbls. to fill between 7 and 13" casing
50 bbls. to fill cavities and displacement

340 bbls. estimated mud

510 Estimated sacks of bar at $3.00 per sack

$ 1,530.00 plus freight from Price for bar
130.50 for gel plus freight from Price

$ 1,660.50 estimated gel and bar needed
Suggest 11.5 or 12# mud

Here is an estimated cost of some things you will need, and some things you may need:

1.	Cat work on road estimate	$ 200.00
2.	Will need a 300 bbl. storage tank.	
	Rental for 1st day	147.00
	Each additional day	7.00
	Hauling to and from Vernal - estimate	200.00
3.	Cement - Well No. 2 - 250 sacks	500.00
4.	Water - Well No. 2 - estimate	300.00
5.	Cement - Well No. 4 - 190 sacks	380.00
6.	Water - Well No. 4 - estimate	300.00

Due to possibility of tubing in hole may be parted and according to records, is parted in No. 2. This is a list of fishing tools which would be needed to clean hole up to set bottom plug:

1.	Fishing tool man per day plus mileage of 25¢ per mile		$ 90.00
2.	Overshot	First Day	106.00
		Each additional day	33.00
3.	Bumper sub	First Day	75.00
		Each additional day	15.00
4.	Would need 3155 feet of 2 3/8" tubing which we will furnish at no rental charge except cost of hauling from Vernal and back. Estimated truck time - - - - - - - - - - - - - - - -		125.00

Things which may be needed - cement packers, Halliburton, and blowout preventor equipment in the event we cannot control wells with our pump equipment. I would strongly advise staying away from packers and squeeze jobs if at all possible, due to the condition of casing due to corrosion, which can be prevented by pulling all casing possible, and welding on swedges and pumping cement between casings which cannot be recovered. We will pull casing at no charge for the salvage which you could not afford to pay us to pull, as this casing will only be junk. I assure you this would be to your advantage. Rig time would only be charged while mixing mud, fishing out tubing, picking up tubing, moving to and from Vernal, spotting cement plugs, setting dry hole marker, rigging up, tearing down, etc. All casing pulling and welding on stubs would be at our expense.

I have worked with both Mr. Daniels of U.S.G.S. and Mr. Paul Burchell with the state, and they are very cooperative on wells like these. They understand the problems that can be encountered on wells like these, and will cooperate as much as possible.

I will be frank with you. These wells are in very bad shape due to corrosion and poor well head equipment on top and will be very hard to plug and abandon. I am sure that most of the problem will be getting the wells killed and bottom plugs in.

I don't know where equipment could be rented in regards to the hydrogen sulfide gas which may be present.

I would not be able to give a contract bid on these wells as I would be afraid to even attempt figuring a bid on them. I would not attempt these wells unless there was $10,000.00 in escrow and this way I could assume payment for additional fishing equipment, etc., without any delay due to finances, etc.

As I say, I have no idea what the cost could be or will be on these wells. It could cost anywhere from $5,000.00 to $15,000.00. I would want to keep a daily contact with you, and daily cost reports made to you. I would prefer someone representing you at locations.

You can contact Mr. James Tadlock for his advise and estimate as he is acquainted with these wells and has done this type of work, and is a Petroleum Engineer. His address is:

Mr. James Tadlock
P.O. Box 418
Vernal, Utah 84078
Phone No. 801-789-3573

If there is any way we can help you, please call or write, as I know this is a bad situation, as I understand it, you got in to a bad deal when you acquired these wells.

Sincerely,

Weldon Wooley
Utah-Colorado Casing Pullers

Cisco, Utah
Jan. 14, 1971

Mr. Ed Schnieder
Carbonic Engineering
P.O.Box 8
Lathrop, California

Dear Sir:

Enclosed is an estimate on plugging wells. I plan on using a large cable tool rig to do this work. Ican get in and out of the hole in a few minutes and I can run a string of tools thru the pipe and make sure there are no obstructions in the pipe to stop a bridge plug. If I can set bridge plug just above the perforations in the 7 inch pipe I can dump cement on top of the plug with a dump bailer. This would eliminate any possible chance of mud and cement being blown out of the hole due to gas cut mud and cement that wont set due to agitation by gas. I would try the bridge plug on the # 4 well only as the # 2 well may have numerous holes in it as it has been in the hole 40 years. There will be no charge for the bridge plug if I am unable to get it down and set. But I anticipate no trouble setting it as long as the casing is clean.

I worked on the # 2 well in 1957 and fished out a string of tubing that was all coroded and in many pieces. We pumped 250 sacks cement between the 8 and 10 inch pipe to shut off a gas leak that was coming between the casing.

As you know these wells are really in bad condition and are going to be hard to plug. I will hold the price down as much as possible and do a good job. Rig time at $27.50 per hr will be charged only when rig is in operation on actual plugging work. Any pipe pulling such as casing or tubing shall be at my expense, hoping that some of the salvage might reimburse me for my expense.
All the figures I have quoted as to the amount of Baroid and cement needed are in line with what the State and Government will require.

The gas that is blowing out behind the surface pipe in # 4 well makes it very hazardous to work due to the deep cellar that is always full of gas I suppose we will have to use some kind of a gas mask to get down in the cellar to disconnect the well head equipment.

Mr. Paul Burchell of the Oil and Gas Conservation Commission says he will co-operate in every way he can to get this wokk done.

If this meets with your approval we can make up an agreement anytime you are ready.

Yours very truly
John W. Moore
Cisco, Utah
84515

Estimate of plugging wells

Well # 2

810 sacks Baroid to make 350 bbls mud @ $3.25 per sack F. O. B. well	[illegible]632.50
450 sacks cement @ $2.25 per sack F. O. B. well	$1012.00
Cement truck 12 hrs. @ $30.00 per hr.	360.00
Water to mix mud and cement	100.00
Rig time @ $27.50 per hr.	1650.00
	$5755.00

Well # 4

500 sacks Baroid @ $3.25 per sack F. O. B. well	$1620.00
300 sacks cement @ $2.25 per sack F. O. B. well	675.00
Bridge plug to set inside 7 inch casing	300.00
Water to mix mud and cement	100.00
Cement truck 10 hrs. @ $30.00 pre hr.	300.00
Rig time 60 hrs. @ $27.50 per hr.	1620.00
	$4645.00

Cost of moving equipment in and out of well locations ---------- $500.00

Cisco, Utah
Jan. 14, 1971

Mr. Ed Schnieder
Carbonic Engineering
P.O.Box 8
Lathrop, California

EXHIBIT A

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Yours very truly
John W. Moore
Cisco, Utah
84515

EXHIBIT A

CEDO

CARBONIC ENGINEERING COMPANY

HOWLAND AVE., P.O. BOX 8, LATHROP, CALIFORNIA 95330. 209 858-2444

1/21/71

Mr. Gerald R. Daniels, Dist. Eng.

United States Dept. of Interior

Branch Oil & Gas Operations

8416 Federal Bldg.

Salt Lake City, Utah 84111

Re: Carbonic Engineering Co.
Federal Oil & Gas Lease SL-026100 (a)

Dear Mr. Daniels;

Per our telephone converaation of 1/21/71, I have attached Mr. Moore's letter of 1/14 relating to the plugging of wells #2 & #4. He is ready to go to work as soon as an agreement is made up.

While we are ingthe process of making an agreement, I would appreciate it if you would review with Mr. Moore the work to be done so that as much as possible, we are all agreed on it.

If there are any questions concerning this matter please contact the writer.

Very truly yours

CARBONIC ENGINEERING CO.

E. J. Schneider

Sr. Vice Pres.

cc: Mr. M. A. Dean
Orr, Heuring & Wendel

Mr. J. W. Moore
Cisco, Utah

Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah 84111

January 27, 1971

Mr. E. J. Schneider
Carbonic Engineering Company
P.O. Box 8
Lathrop, California 95330

Re: Wells No. 2 and No. 4
Tel. conversation of 1-21-71
and John Moore letter of
1-14-71 - Lease SL 026100(a)

Dear Mr. Schneider:

On September 22, 1970, this office sent a proposed plugging program for the referenced wells to Mr. John Moore, Cisco, Utah. The program outlined in Mr. Moore's letter of January 14, 1971, deviates from our specified program only in the addition of a bridge plug above the perforations in well No. 4 and placing the bottom cement plug on top of the bridge plug. We have no objection to this addition and hope it is possible to get the bridge plug set.

Please file Notices of Intention to Abandon for each well (forms enclosed), stating the program to be used. I realize this may seem redundant at this time but it is my opinion you should have formal written approval via the Sundry Notice for future reference. Please file Notices of Intention to Abandon with the Utah Division of Oil and Gas Conservation also.

By copy of this letter, I am requesting Mr. Moore to contact either Mr. Paul Burchell or me prior to starting work on the wells.

Sincerely yours,

Gerald R. Daniels,
District Engineer

cc: Mr. John Moore
Cisco, Utah

Utah Div. of Oil & Gas Con.

United States Department of the Interior

GEOLOGICAL SURVEY
Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah 84111

EXHIBIT A

January 27, 1971

Mr. E. J. Schneider
Carbonic Engineering Company
P.O. Box 8
Lathrop, California 95330

Re: Wells No. 2 and No. 4
Tel. conversation of 1-21-71
and John Moore letter of
1-14-71 - Lease SL 026100(a)

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Sincerely yours,

Gerald R. Daniels

Gerald R. Daniels,
District Engineer

cc: Mr. John Moore
Cisco, Utah

Utah Div. of Oil & Gas Con.

EXHIBIT A

CARBONIC ENGINEERING COMPANY
HOWLAND AVE., P.O. BOX 8, LATHROP, CALIFORNIA 95330. 209 858-2444

3/31/71

Mr. Gerald Daniels, Dist. Eng.
United States Dept. of Interior
Branch Oil & Gas Operations
8416 Federal Bldg.
Salt Lake City, Utah 84111

Dear Mr. Daniels:

This letter is to advise you we are sending to Mr. John Moore a contract for his signature covering the work to be done on Wells #2 & 4 per your Jan. 27th letter.

After his signing and return to us for signature, we expect work to be started on the aforementioned wells. We ask that your office or Paul Burchell of the State office keep in touch with Mr. Moore as the work progresses. If there are any questions or should a problem develop when the job is in progress, please call me immediatly.

Your courtesy and help in this matter will be greatly appreciated.

Very Truly yours
CARBONIC ENGINEERING CO.

E. J. Schneider
Senior Vice Pres.

cc: John Moore
Cisco, Utah

ORR, HEURING & WENDEL
ATTORNEYS AT LAW
1020 CENTRAL BUILDING
OAKLAND, CALIFORNIA 94612
AREA CODE 415 834-6600

J. CLAYTON ORR
DAVID I. WENDEL
LAWRENCE S. SIMON
VICTOR D. ROSEN
DONN L. BLACK
WALTER M. SCHEY
NEIL R. ANDERSON
MICHAEL A. DEAN
ARTHUR W. RUTHENBECK

MARION W. HEURING
(1907-1961)

April 1, 1971

Mr. Gerald R. Daniels, District Engineer
United States Department of the Interior
Geological Survey
Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah 84111

Re: Federal Lease SL 026100(a)
Wells No. 2 and No. 4
Sundry Notices and Reports on Wells

Dear Sir:

As you know, this office is general counsel for Carbonic Engineering Company, Lathrop, California.

Pursuant to your letter dated January 27, 1971, we enclose triplicate originals of Sundry Notices and Reports on Wells in connection with the abandonment of wells Nos. 2 and 4 on the lands covered by the above-described lease.

We trust that the foregoing meets with your approval, but if you should have any questions and/or comments in connection with the Notice, please feel free to contact the undersigned at your convenience.

Very truly yours,

ORR, HEURING & WENDEL

Michael A. Dean

MAD/dh

cc: Henri E. deLotty, Sr., President
and Edward Schneider, Sr. Vice President
Carbonic Engineering Company
P. O. Box 8
Lathrop, California

cc: Mr. Paul Burshell
Utah Division of Oil and Gas Conservation
1588 West North Temple
Salt Lake City, Utah 84116

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☒ OTHER

2. NAME OF OPERATOR
CARBONIC ENGINEERING COMPANY

3. ADDRESS OF OPERATOR
P.O. BOX 8, LATHROP, CALIFORNIA

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface Farnham Dome Unit #2 and #4 Wells,
Sec. 12, T. 15 S, R 11 E,
Carbon County, Utah

5. LEASE DESIGNATION AND SERIAL NO.
SL 026100(a)

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
---

7. UNIT AGREEMENT NAME
---

8. FARM OR LEASE NAME
---

9. WELL NO.
No. 2 and No. 4

10. FIELD AND POOL, OR WILDCAT
---

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 12, T 15 S, R 11 E

12. COUNTY OR PARISH
Carbon

13. STATE
Utah

14. PERMIT NO.
---

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
---

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☒	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

The work shall be done by John W. Moore, Cisco, Utah, and shall commence during the week of April 4, 1971, and shall be completed approximately thirty days thereafter subject to extensions resulting from causes beyond the reasonable control of the contractor. The precise work is outlined in two letters, one of which is dated January 14, 1971 from John W. Moore to Carbonic Engineering Company, and the other is dated January 27, 1971 from United States Department of the Interior, Geological Survey, Branch of Oil and Gas Operations to Carbonic Engineering Company. Said letters are attached to this Notice as Exhibit "A" and are made a part hereof

18. I hereby certify that the foregoing is true and correct

SIGNED [signature] TITLE Attorney for Carbonic Engineering CO DATE April 1, 1971

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

#4 Started to blow @ 8:16 AM Aug 11-71

320# blew down to 360" in 1 hour

Blew down to 320# in two hours

Blew down to 160# in 3 hours

Blew down to 160# in 4 hours

1:10 P.M. 160# in 5 hours

1:45 P.M Pressure went up to 200#

Shut well in

Helper - Bill Raey

#3 S.I. 8/12/71 @ 440 psi

#2 S.I. 8/12/71 @ 760 psi

#4 - blow down 110 lb in 1 hr 5 min 8/12/71

Well began blow this morning - then fell in w/ water and pull tubing to check it

Farnham Dome #4

Halliburton setting initial plug -

Johnny Moore 9-1-71
Fairbanks Dome #4

extra:

60 sx - 370'

120 sx total + 50 sx baried

#2 well opened

no change

#4 still blowing

Cut 7" ≈ 1500'

Having trouble ~~with getting~~ head between 7" + 13" off

PMB

9/7/71

U

JOHN MOO...

Farnham Dome #4

9/27/71

Johnny Moon

shot 660' of 7"

lots of Cavings - also in pipe.

Halliburton:

1.8 lb/gal cement

9" hole - 275 sx (25 sx ...)

660' to surface

hole in bad shape -

Calcium Chloride to be added

for "quick set"

SS at 600' could be where

gas is Comming from?

PMB

January 25, 1972

Carbonic Engineering Company
Box 8
Lathrop, California 95330

Re: Well No. Farnham Dome #2 & #4
Sec. 12, T. 15 S, R. 11 E,
Carbon County, Utah

Gentlemen:

This letter is to advise you that the Subsequent Report of Abandonment for the above referred to wells is due and has not yet been filed with this office.

Rule D-2, General Rules and Regulations and Rules of Practice and Procedure, requires that said reports be filed within thirty (30) days after the plugging of any well has been accomplished.

Your prompt attention to the above will greatly be appreciated.

Very truly yours,

DIVISION OF OIL AND GAS CONSERVATION

SCHEREE DeROSE
SUPERVISING STENOGRAPHER

:ss

ORR, HEURING & WENDEL
ATTORNEYS AT LAW
1020 CENTRAL BUILDING
OAKLAND, CALIFORNIA 94612
AREA CODE 415 834-6600

J. CLAYTON ORR
DAVID I. WENDEL
LAWRENCE S. SIMON
VICTOR D. ROSEN
DONN L. BLACK
NEIL R. ANDERSON
MICHAEL A. DEAN
ARTHUR W. RUTHENBECK
WILLIAM H. KIMBALL

MARION W. HEURING
(1907-1961)

February 14, 1972

Ms. Scheree DeRose
Supervising Stenographer
State of Utah
Department of Natural Resources
Division of Oil and Gas Conservation
1588 N. Temple
Salt Lake City, Utah 84116

RE: Well No. Farnham Dome No. 2 & 4
Sec. 12, T. 15 S, R 11 E,
Carbon County, Utah

Dear Ms. DeRose:

Pursuant to your letter dated January 25, 1972, we enclose triplicate originals of Sundry Notices and Reports on Wells in connection with the abandonment of Wells Nos. 2 & 4 on the lands covered by the above described Lease.

We trust that the foregoing meets with your approval, but if you should have any questions and/or comments in connection with the Notice, please feel free to contact the undersigned at your convenience.

Very truly yours,

ORR, WENDEL & LAWLOR

Michael A. Dean

MAD/rs
Encls.
cc: Mr. E. J. Schneider
Mr. Henri E. DeLotty, Sr.

Form OGCC-1 b

STATE OF UTAH

OIL & GAS CONSERVATION COMMISSION

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☒ OTHER

2. NAME OF OPERATOR: CARBONIC ENGINEERING COMPANY

3. ADDRESS OF OPERATOR: P.O. BOX 8, LATHROP, CALIFORNIA

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: Farnham Dome Unit #2 and #4 Wells, Sec. 12, T. 15 S, R 11 E, Carbon County, Utah

5. LEASE DESIGNATION AND SERIAL NO.: SL 026100(a)

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ----

7. UNIT AGREEMENT NAME: ----

8. FARM OR LEASE NAME: ----

9. WELL NO.: No. 2 and No. 4

10. FIELD AND POOL, OR WILDCAT: ----

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 12, T 15 S, R 11 E

14. PERMIT NO.: ----

15. ELEVATIONS (Show whether DF, RT, GR, etc.): ----

12. COUNTY OR PARISH: Carbon

13. STATE: Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	X
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

The work has been completed by John W. Moore, Cisco, Utah. The precise work which was carried out and completed is outlined in two letters, one of which is dated January 14, 1971, from John W. Moore to Carbonic Engineering Company, and the other is dated January 27, 1971, from United States Department of the Interior, Geological Survey, Branch of Oil and Gas Operations to Carbonic Engineering Company. Said letters are attached to this Notice as Exhibit "A" and are made a part hereof.

18. I hereby certify that the foregoing is true and correct

SIGNED [signature] TITLE Attorney for Carbonic Engineering Co DATE February 15, 1972

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Branch of Oil and Gas Operations
8416 Federal Building
Salt Lake City, Utah 84111

February 29, 1972

Carbonic Engineering Company
P. O. Box 8
Lathrop, California 95330

Re: Well 2 and Well 4, Sec. 12,
T. 15 S., R. 11 E., S.L.M.,
Carbon County, Utah
Lease Salt Lake City 026100(a)

Gentlemen:

Thank you for the subsequent report of abandonment that you sent for the two wells. The report was apparently prepared by Mr. Michael Dean of Orr, Wendel and Lawlor, but was unsigned. The report was not very complete in that it referred only to the proposed plugging procedures which were adjusted due to hole conditions.

Therefore, this office is requesting, by copy of this letter, that Mr. John Moore prepare separate subsequent reports of abandonment for each well which detail the plugging operations performed. This is not to imply that there is any question concerning Mr. Moore's work, as he coordinated it very closely with this office and received approval of each step. We simply wish to have a complete record of the abandonment of each well.

Sincerely,

(ORIG. SGD.) G. R. DANIELS

Gerald R. Daniels,
District Engineer

cc: Mr. John Moore
Cisco, Utah 84515

State of Utah, Div. Oil & Gas
Casper